Mugil cascasia Buchanan-Hamilton

Mugil cascasia Buchanan-Hamilton, Fishes of Ganges, pp. 217, 380, 1822 (type locality, northern Bengal). — Valenciennes, Hist. Nat. Poiss., vol. 11, p. 145, 1836 (compiled). — Bleeker, Verh. Batavia. Genoot. (Nat. Sch. Bengal) vol. 25, p. 48, 1853 (reference); Arch. Néerl. (Archipel. viscby Sumatra), vol. 8, p. 82, 1860. — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 410, 1861 (name). — Day, Fishes of India, pt. 2, p. 355, pl. 75, fig. 6, 1876 (Upper Ganges, Jumna River, Patna, Brahamapootra, Dehli); Fauna British India, Fishes, vol. 2, p. 351, 1889.

53 examples. Yan River, Tagabas, Marinduque Island. February 25, 1909. Length 38 to 113 mm.

21594. Yana River, Legaspi, Albay Gulf, Luzon. June 7, 1907. Length 22 to 86 mm. 77 examples.

66 examples. Zamboanga Canal. October 8, 1909. Length 45 to 72 mm.

23598 to 23602. Zamboanga River. October 9, 1909. Length 115 to 137 mm.

60 examples. Ubi Island, Bouro Island vicinity. December 7, 1909. Length 67 to 90 mm.

4 examples. Ubi River, Ubi Island. December 9, 1909. Length [illegible] to 89 mm.

Depth 4; head 4. Snout 4 in head; eye 4, subequal to greater than snout, 1 1/2 in interorbital, without adipose lids; maxillary slightly exposed; mouth forms very obtuse angle; upper lip placed obliquely so not forming part of front of snout; mouth angle at symphysis very obtuse; interorbital 2 1/2 in head, flat; preorbital slightly bent, serrated below; opercle with strong spine.

Scales 36 to 38 in lateral series; 16 to 18 transversely, 16 predorsal. Few scales on bases of vertical fins. Pectoral with short, angular, somewhat large axillary scale. Scales strongly ctenoid, each with slight keel.

D. IV — I, 8, first spine 1 1/2 in head, first branched ray 1 2/3;

D. III, 8 or 9, first ray 1 3/4; least depth of caudal peduncle 2; caudal fin length 1; pectoral 1 1/3, rays 15; ventral rays I, 5, fin 1 1/2 in head.

Yellowish olive along top of head, grayish on back and upper third of side, with many fine black dots. Lower two-thirds of body silvery white. Uncovered space on chin, eyes, pectoral base and center of caudal base gamboge yellow. Cheeks silvery. Fins unicolor. Length 10 2 mm. (Day.)

India, in the upper waters of the Ganges, Jumna and Brahmapootra river basins.

A small species, apparently not exceeding the above dimensions according to Day.

2478

Mugil suppositus Günther

Mugil suppositus Günther, Cat. Fish. Brit. Mus., vol. 3, p. 437, 1861 (~~type locality~~, on Cantor). — Day, Fishes of Malabar, p. 143, 1865. — Duncker, Mitteil. Naturh. Mus. Hamburg, vol. 21, p. 166, 1903 (1904) (compiled).

Percalabrax poecilonotus Guichenot, Pisc. en Chine Dabry de Thiers., 1872, pl. 26, fig. 2. China. — Vaillant, Bull. Soc. Philomath. Paris, ser. 7, vol. 5, 1881, p. 104 (Wuchow, China).

Percalabrax philonotus Guichenot, Pisc. en Chine Dabry de Thiers., 1872, pl. 26, fig. 3. China.

Percalabrax tokionensis (Döderlein) Steindachner and Döderlein, Denkschr. Akad. Wiss. Wien, vol. 47, pt. 1, 1883, p. 228. Tokyo. (name in text.)

2479

Mugil borbonicus (not Valenciennes)
Cantor, Journ. Asiatic Soc. Bengal,
vol. 18, pt. 2, p. 1083, 1849 (1850)
(type locality, Piniang River,
in fresh water).

? Liza formosae Ishima, Ann.
Carnegie Mus., vol. 13, no. 3-4, p.
251, April 25, 1922 (type locality,
Anping, Formosa).

Scales 8 to 88 in lateral line to caudal base and 6 to 14 more on latter, 14 or 15 above, 17 or 18 below, 50 to 62 predorsal; 10 to 20 rows across cheek to preopercle ridge and 6 more on preopercle flange; scales largest on flanks and very small and crowded at bases of rayed vertical fins and on predorsal region; low scaly sheaths along spinous dorsal and anal bases; maxillary, end of snout and preorbital naked. Scales with 7 to 9 basal radiating striae; apical denticles 43 to 56; circuli fine.

D. XIII or XIV, 12, I or 13, I, fourth spine 2 to $2\frac{1}{5}$ in total head length, sixth ray $2\frac{3}{5}$ to $2\frac{2}{3}$; A. III, 8, I; second spine $2\frac{1}{3}$ to $2\frac{3}{5}$, first ray $2\frac{1}{10}$ to $2\frac{1}{8}$; caudal $1\frac{2}{5}$ to $1\frac{1}{2}$, emarginate;

Murgil mulleri Klunzinger

? Murgil mulleri Klunzinger, Sitzs. Ber. Akad. Wiss. Wien, math.-naturw. Kl., vol. 80, pt. 1, p. 395, 1879 (1880) (type locality, King George's Sound, Western Australia). — Macleay, Proc. Linn. Soc. New South Wales, vol. 9, p. 42, 1884 (copied). — McCulloch, Rec. Austral. Mus., vol. 5, pt. 1, p. 116, June 29, 1929 (reference).

7235. Barbus Point, Siasi Island, between Jolo and Tawi Tawi Group. September 20, 1909. Length 355 mm.

11771. Iloilo market, Panay. June 2, 1908. Length 224 mm.

14346. Limbones Cove, Manila Bay. February 6, 1909. Length 225 mm.

12522. Malochin Harbor, Linapacan Island. December 19, 1908. Length 238 mm. Gullet swollen, due to large isopod crustacean on tongue.

5342. Agusan River, Camp Overton, Mindanao. August 1909. Length 225 mm.

21645 and 21646. Port Pamelo, Luzon. July 13, 1905. Length 137 to 145 mm.

6178. Port San Pio Quinto, Camiguin Island. November 11, 1908. Length 318 mm.

4717. San Miguel Harbor, Jicao Island. April 21, 1908. Length 345 mm.

A646. Simalue Bibi, Bibi Island. September 23, 1909. Length 328 mm.

depth 4½; head 5, short, high. Snout short, convex; eye without adipose lids; maxillary projects little behind mouth angle, also little beyond prearbital; lips thin; mouth cleft forms very obtuse angle; interorbital 2½ in head.

Scales 40 in lateral series; 14 transversely, 21 predorsal forward to snout. Dorsal and anal scaly.

D. IV/I, 8, anterior spines 2 in head, origin opposite twelfth lateral scale; A. I, 8, origin little before soft dorsal origin; caudal emarginate, least depth of caudal peduncle little less than 2 in head; pectoral shorter than head, reaches tenth lateral scale; ventral midway between pectoral base

and first dorsal origin.

Dorsals with narrow anterior border and caudal with broad border behind blacks. Blacks spot at pectoral base above.
(Günther.)

According to Cantor & very detailed account the following may be added to the above:

Eye 4, subequal with snout, 1 1/3 in interorbital; no teeth in lips. Pectoral axillary scale 1/2 fin. A. III, 9 (Günther says last split ray counted as two and he gives, apparently wrongly, but a single anal spine? D. I, Length 152 mm.

The brief and imperfect account of Mugil mülleri Klunzinger seems to refer to the present species. Although Mugil supposius Günther

is mentioned Klunzinger states that it "unterschieden durch andere Dimensionen":

Depth 4½; head 4.

Eye without adipose lids; small hind end of maxillary not projecting; mouth more angular forward; upper lip small; both lips with well developed cilia; preorbital toothed behind.

Scales 38 to 40 in lateral series; 14 transversely. Scales on head above nearly reaching upper lip.

D. IV — I, 8, spines pungent, not very strong; A. III, 8,

Silvery. Fins without black bands. No black spot or streak at base of pectoral. Length 80 mm.

As the presence, extent or variation of the dark pectoral spot is known to vary in species of Mugil and as this is about the only character given by Klunzinger which may seem at variance I place this

species provisionally with the present one.

~~Lyia formosae Dohrn~~, in spite of the intention by its author that it differs from *Mugil suppositus* Günther in the presence of nine anal rays and the maxillary entirely covered by the preorbital, may be another variant.

2485

Mugil ramada (Risso)

Mugil ramada Risso, Hist. Nat. Eur. Mérid., vol. 3, p. 390, 1826 (type locality, Nice, France).

Liza ramada Fowler, Proc. U. S. Nat. Mus., vol. 56, p. 251, 1919 (Elmina, Ashantee), p. 266 (types of Liza alosoides).

Diploprion bifasciatus Cantor,
Preuss. Exped. Ost-Asien, vol. 1, 1876, p.
386 (Nagasaki Bay). — Jordan and
Snyder, Annot. Zool. Japan., vol. 3, 1901,
p. 73 (Yokohama, Kagoshima, Nagasaki).
— Jordan and Seale, Proc. U. S. Nat.
Mus., vol. 29, 1905, p. 521 (Hong Kong);
Proc. Davenport Acad. Sci., vol. 10, 1905,
p. 9 (Hong Kong). — Jordan and Richardson,
Proc. U. S. Nat. Mus., vol. 37, 1910, p. 427,
fig. 2 (Hakata, Wakanoura, Nagasaki). —
Iguka and Matsumura, Cat. Zool. Spec.
Tokyo Mus., 1920, p. 15-4 (Kagoshima).

Mugil capito Cuvier, Règne Animal, vol. 2, ed. 2, p. 232, 1829 (type locality, Nice). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 439, fig. (head), 1861 (Cape of Good Hope). — Gilchrist and Thompson, Ann. South Africa. Mus., vol. 11, pt. 2, p. 44, 1911 (Natal). — Boulenger, Cat. Fresh Water Fish. Africa, vol. 4, p. 83, fig. 49, 1916 (Egypt, Suez, Cape of Good Hope, Table Bay, Cape Colony). →

↑ Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, p. 312, May 21, 1917 (reference). — Barnard, Ann. South Afric Mus., vol. 21, pt. 1, p. 304, June 1925 (Table Bay; Natal).

Mugil cubahra Valenciennes, Hist. Nat. Poiss., vol. 9, p. 43, 1836 (type locality, Europe).

Mugil capito Cuvier, Règne Animal, vol. 2, ed. 2, p. 232, 1829 (type locality, Nice). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 439, fig. (head), 1861 (Cape of Good Hope). — Gilchrist and Thompson, Ann. South Africa. Mus., vol. 11, pt. 2, p. 44, 1911 (Natal). — Boulenger, Cat. Fresh Water Fish. Africa, vol. 4, p. 83, fig. 49, 1916 (Egypt, Suez, Cape of Good Hope, Table Bay, Cape Colony). —

→ Mugil britannicus Hancock, Quart. Journ. Sci. Lit. Art. London, p. 129, 137, 1830 (type locality, London market).

Mugil cubahra Valenciennes, Hist. Nat. Poiss., vol. 9, p. 43, 1836 (type locality, Europe).

young with black blotch behind gill opening. miniatus

a.[2] Snout moderate, not greatly elongate; maxillary more than half way in snout. Lethrinichthys.

b.[1] Second dorsal spine longest, filiform;

Hope;

Mugil bo

Quart. Jo

p. p. 127,

London m

Mugil al

Zat. Pois

Depth 2 1/8 to 2 1/4; head 2 3/5; width 2 1/4 to 2 3/5. Snout 3 to 3 1/3 in head from snout tip; eye 3 4/5 to 4 3/4, 1 1/10 to 1 3/5 in snout, greater than interorbital in young to subequal with age; maxillary reaches 2/5 to 1/2 in eye, expansion 1 to 1 1/4 in eye, length 1 7/8 to 2 in head from snout tip; teeth villiform, in bands in jaws, on vomer and palatines; interorbital 4 4/5 to 5; preopercle limb rugose, edge minutely serrate, though serrae better developed on lower edge; opercular spines strong, equidistant, median largest; subopercle serrate; preorbital rugose, also humeral arch. Gill rakers 9+21, lanceolate, equal gill filaments or 1/2 in eye.

Scales 93 to 95 in lateral line to caudal base and 9 to 11 more on latter; tubes 68 to 70 in lateral line to caudal

Mugil multilineatus Andrew Smith, ~~Illustrations~~ Zool. South Africa, pl. 30, fig. 2, 1849 (type locality, Coast and rivers of Cape of Good Hope). — Bleeker, Nat. Tijds. Ned. Indië, vol. 21, p. 54, 1860 (reference). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 443, 1861 (type). — Gilchrist, Cat. Fish. South Africa, vol. 1, p. 136, 1902 (reference).

base paired 1 to 5 more on latter; 17 or 18 scales above, 43 to 46 below, 18 or 19 predorsal, 11 rows across cheek; fins scaleless, except caudal base; maxillary naked. Scales with 6 or 7 basal radiating striae; 5 or 6 long apical denticles, in 2 to 4 transverse series; circuli moderately fine.

D. VIII, I, 13, I, third spine $1\frac{2}{5}$ to $1\frac{2}{3}$ in total head length, fourth ray $1\frac{3}{5}$ to $1\frac{4}{5}$; A. II, II, 10, I, second spine $6\frac{1}{5}$ to 7, third ray $1\frac{3}{5}$ to $1\frac{2}{3}$; caudal $1\frac{1}{4}$ to $1\frac{2}{5}$, convex behind; least depth of caudal peduncle $2\frac{1}{3}$ to $2\frac{2}{5}$; pectoral $1\frac{2}{5}$ to $1\frac{2}{3}$; ventral $2\frac{1}{3}$ to $2\frac{2}{5}$ in combined head and body to caudal base.

Light yellowish. Two broad blackish brown cross bands; first

2488

Mugil capensis (not Valenciennes) Andrew Smith, Zool. South Africa, pl. 31, fig. 1, 1849 (eastern and western coasts, rivers and lakes of Colony). — Pappe, Synop. Fish. South Africa, p. 26, 1853. — Bleeker, Nat. Tijds. Ned. Indië, vol. 21, p. (50, 54) 69, 1860 (reference). — Castelnau, Mém. Poiss. Afrique Australe, p. 46, 1861 (Table Bay). — Pappe, Synop. Fish. Cape of Good Hope, p. 19, 1866.

nearly wide as eye passes from just before spinous dorsal obliquely to eye, then across cheek widening below and fading, though in some examples extends as pale or broad, broad dusky brown band from spinous dorsal down to vent and front of anal base. Ventral dusky brown. Fins otherwise uniform yellowish.

India, East Indies, Philippines, China, Japan, Queensland, West Australia. Our specimens all agree in having greatly longer ventrals than shown in Jordan and Richardson's figure[1]. In most of our material the

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[1] Proc. U. S. Nat. Mus., vol. 37, 1910, p. 428, fig. 2.

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ventral is nearly twice long as pectoral. Several of our East Indian examples

Mugil petherici Günther, Cat. Fish. Brit. Mus., vol. 3, p. 441, 1861 (type locality, Nile at Cairo).

Mugil curtus (not Yarrell) Lortet, Arch. Mus. Hist. Nat. Lyon, vol. 3, p. 132, pl. 11, fig. 1, 1883 (Syria).

Mugil auratus (not Risso) Lortet, Arch. Mus. Hist. Nat. Lyon, vol. 3, p. 134, pl. 11, fig. 3, 1883 (Syria).

Liza aloxoides Fowler, Proc. Acad. Nat. Sci. Philadelphia, p. 746, pl. 45 (upper fig.), 1903 (type locality, Gabun, West Africa).

differ a little from those taken in the Philippines in having light colored ventrals.

4. Albijaban Island, Ragay Gulf, Luzon. March 6, 1909. Length 135 mm.

7289. Grigoro Point, Hamar. July 28, 1909. Length 114 mm.

5152, 7306, 7307. Soto market. March 6, 1908. Length 170 to 178 mm.

17519 to 17521. Lampinigan Island, south coast of Zamboanga. September 11, 1909. Length 125 to 140 mm.

14579. Maculabo Island, east coast of Luzon. June 14, 1909. Length 145 mm.

16410 to 16422. Inamulay, Mindoro. June 4, 1908. Length 130 to 150 mm.

16665. Palani Island, off northern Luzon. November 18, 1908. Length 153 mm.

Depth 3 1/6 to 4 4/5; head 3 to 3 3/4, width 1 2/3 to 1 3/4. Snout 3 3/4 to 5 in head; eye 3 1/4 to 5 3/4, 1 1/6 to 1 1/4 in snout, 1 3/4 to 2 1/5 in interorbital, without adipose lids; maxillary with little of end exposed, not quite reaching eye, length 3 1/2 to 4 1/5 in head; mouth wide, lower jaw included within upper and would form obtuse angle; upper lip broad, little less than pupil; interorbital 2 1/3 to 3 in head, broadly convex; preorbital edge denticulate. Gill rakers 47 to 50 + 50 to 75, finely lanceolate, 1 1/2 in gill filaments, which equal eye.

Scales 36 to 43 in median lateral series to caudal base; 12 or 13 transversely, 23 to 33

predorsal. Small scales at front of soft dorsal and anal basally. No pectoral axillary scale. Scales with 7 to 11 basal radiating striae; 83 to 85 series of short low apical denticles; circuli fine.

D. $\frac{IV}{=}$ — $\frac{I}{=}$, 8, first spine $1\frac{3}{4}$ to $1\frac{4}{5}$ in head, first branched ray $1\frac{7}{8}$ to $2\frac{1}{8}$; A. $\frac{III}{=}$, 8, first branched $1\frac{7}{8}$ to 2; caudal nearly or quite equals head, well forked; least depth of caudal peduncle $2\frac{3}{4}$ to $2\frac{4}{5}$ in head; pectoral $1\frac{1}{2}$ to $1\frac{3}{5}$; ventral $1\frac{1}{2}$ to $1\frac{2}{3}$.

Brown above, sides and below pale to silvery white. Dark longitudinal streaks absent or obsolete.

2492

Eastern Atlantic, South Africa.

muzzle, including interorbital, suborbitals and maxillary, naked. Scales with 16 to 14 basal radiating striae; 23 to 83 apical denticles, either uniserial or with only 1 row of basal elements; ~~canals~~ circuli fine.

D. VI — I, 9, I, third spine 2 to 2 1/4 in total head, first ray 1 3/5 to 1 4/5; A. II, 8, I, second spine 2 1/3 to 2 3/5, first ray 1 3/5 to 2 1/8; caudal 1 1/6 to 1 1/4, deeply emarginate to forked; least depth of caudal peduncle 2 7/8 to 3; pectoral 1 2/3 to 2 1/8; ventral 2 to 2 1/8.

Largely dull warm brown, scarcely paler below and sides with silvery reflections. Five deep longitudinal deep brown sharply defined bands, also median one below from chest to anal; on head posteriorly and on trunk bands all more or less wider or expanded to about half diameter of pupil;

Mugil delicatus Alleyne and Macleay

Mugil delicatus Alleyne and Macleay, Proc. Linn. Soc. New South Wales, vol. 1, p. 341, pl. 15, fig. 1, 1876 (type locality, Cape York). — Macleay, Proc. Linn. Soc. New South Wales, vol. 4, p. 422, 1880 (note); vol. 5, pt. 2, p. 48, 1881 (reference); vol. 6, pt. 1, p. 48, 1881 (Cape ~~Grenville~~ York). — Mc Culloch and Whitley, Mem. Queensland Mus., vol. 8, pt. 2, p. 141, July 7, 1925 (reference). — Mc Culloch, Mem. Austral. Mus., vol. 5, pt. 1, p. 114, June 29, 1929 (reference).

$\frac{3}{5}$ of gill rakers.

Scales 26 to 28 in lateral line to caudal base and 4 or 5 more on latter; 3 or 4 above, 7 below, 13 to 15 predorsal with median keel extending forward midway in interorbital, usually 2 rows on cheek though sometimes only a single row anteriorly; caudal more or less with fine scales over greater portion basally; broad basal scaly sheaths along dorsals and anal, usually one scale in width. Scales with 5 to 16 basal radiating short marginal striae; circuli moderate, more numerous apically.

D. $\frac{VII}{\equiv}$, $\frac{I}{\equiv}$, 9, $\frac{I}{=}$, second spine $1\frac{1}{7}$ to $1\frac{2}{5}$ in total head length, first ray $1\frac{4}{5}$ to $1\frac{7}{8}$; A. $\frac{III}{\equiv}$, 9, $\frac{I}{\equiv}$ to 10, $\frac{I}{=}$, third spine $1\frac{4}{5}$ to $2\frac{1}{8}$, first ray $1\frac{7}{8}$ to 2; caudal $2\frac{3}{5}$ to $2\frac{2}{3}$ in combined head and body to caudal base; least

depth 4 ($4\frac{1}{2}$ in description); head 4 ($5\frac{1}{2}$ in description). Snout $3\frac{7}{8}$ in head, short, obtuse; eye 4, slightly less than snout, without adipose lids; free space between chin and mandibles narrowly lanceolate; interorbital over $\frac{1}{2}$ in head, low, evidently flattened.

Scales 37 in lateral series; (12? on figure transversely) 21 predorsal to snout. Ventral axillary scale $1\frac{3}{4}$ in fin. ~~Although none elsewhere shown at pectoral axil~~ Evidently pectoral with "elongate scale on the upper part of the axil". Soft dorsal and anal scaly.

D. IV — I, 8, first spine $1\frac{1}{5}$ in head, first branched ray 1; A. III, 8, first branched ray 1; least depth of caudal peduncle $2\frac{1}{3}$; ventral $1\frac{1}{4}$; caudal $2\frac{4}{5}$ in rest of fish, deeply emarginate; pectoral

3, reaches back far as hind edge of first dorsal base, falcate, pointed.

Bright silvery, slightly darker on back. Caudal with upper lobe tipped with black. Black spot at pectoral origin. Length not given. (Alleyne and Macleay.)

Queensland. Apparently known by its deeply emarginate soft vertical fins and long falcate pectoral. Lips apparently narrow or moderate.

2496

Mugil buchanani Bleeker

Mugil buchanani Bleeker, Verh. Batavia. Genootsch. (Nat. Sch. Bengal), vol. 25, p. (48) 99, 1853 (type locality, Hooghly River, Calcutta); Act. Vor. Vci. Indo-Neerl. (Archt. prindf. Sumatra), vol. 8, p. 80, 1860. — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 410, 1861 (reference). — Day, Fishes of India, pt. 2, p. 358, 1876 (type; India). — Peters, Monatsb. Akad. Wiss. Berlin, p. 442, 1876 (Seychelles). — Pellegrin, Bull. — Day, Fishes British India, vol. 2, p. 354, 1889 (compiled).

Fowler, Mem. Bishop Mus., vol. 10, p. 123, 1928 (copied).

2496

Mugil buchanani Bleeker

Mugil buchanani Bleeker, Verh. Batavia. Genootsch. (Nat. Sch. Bengal), vol. 25, p. (48) 99, 1853 (type locality, Hooghly River, Calcutta); Act. Soc. Sci. Indo-Neerl. (Atlas. Ichth. Indonesia), vol. 8, p. 80, 1960.
— Günther, Cat. Fish. Brit. Mus., vol. 3, p. 410, 1861 (reference). — Day, Fishes of India, pt. 2, p. 358, 1876 (type; India). — Peters, Monatsb. Akad. Wiss. Berlin, p. 442, 1876 (Seychelles). — Pellegrin, Bull. Mus. Hist. Nat. Paris, no. 4, p. 229, 1898 (Agrigan, Mariannes). — Fowler, Mem. Bishop Mus., vol. 10, p. 123, 1928 (copied).

o Mus.

Izuka and Matsumura, Cat. Zool. Spec. Tokyo Imp
rtebr., 1920, p. 149 (Tsu, Ise).

(Seychelles
Inds. Hist.
1898 (Agr
Fowler, W

Fins all pale brownish, due to sprinkling of dark dots. Upper dorsal with membranes dusky terminally or marginally. Ventrals also dusky marginally.

Known only from the East Indies and Siam.

Though reported from the Philippines no examples are in our collections.

The above description is from the example 147 mm. long, obtained in Baram, British North Borneo, in 1898, obtained by Dr. W. H. Furness 3rd. and now in the collection of the Academy of Natural Sciences of Philadelphia. According to Bleeker it reaches 203 mm. in length.

2497

Mugil ceylonensis Günther, Cat. Fish. Brit. Mus., vol. 3, p. 446, fig. (head), 1861 (type locality, Ceylon); Fishes of Zanzibar, p. 99, 1866 (Zanzibar; Johanna Island). — Boulenger, Proc. Zool. Soc. London, 1887, p. 664 (Muscat). — Gilchrist & Thompson, Ann. Durban Mus., vol. 1, pt. 4, p. 316, 1917 (reference). — Barnard, Ann. South Afric. Mus., vol. 21, pt. 1, p. 305, June 1925 (Natal, Zululand, Delagoa Bay, Chinde, "Knysna").

— Sauvage, Hist. Nat. Madagascar, Poiss., p. 522, 1891 (reference).

(natal). — Boulenger, Cat. Fresh Water Fish. Africa, vol. 4, p. 93, fig. 55, 1916 (Zululand; Zanzibar). —

Mugil ceylonensis Günther, Cat. Fish. Brit. Mus., vol. 3, p. 446, fig. (head), 1861 (type locality, Ceylon); Fishes of Zanzibar, p. 99, 1866 (Zanzibar; Johanna Island). — Boulenger, Proc. Zool. Soc. London, 1887, p. 664 (Muscat). — Gilchrist and Thompson, Ann. South Afric. Mus., vol. 11, pt. 2, p. 43, 1911 (Natal). — Boulenger, Cat. Fresh Water Fish. Africa, vol. 4, p. 93, fig. 55, 1916 (Zululand; Zanzibar). — Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, p. 316, 1917 (reference). — Barnard, Ann. South Afric. Mus., vol. 21, pt. 1, p. 305, June 1925 (Natal, Zululand, Delagoa Bay, Chinde, "Knysna").

(Inadmissible.)

Mylio (Commerson) Lacépède, Hist. Nat. Poiss.,
vol. 3 1802. p. 131. Type Sparus mylio

predorsal with median keel forward to middle of interorbital, 7 rows on cheek to preopercle ridge; caudal largely covered with small scales, larger basally; dorsals and anals with rather broad basal scaly sheaths; patch of small scales on pectoral base. Scales with 4 to 6 basal radiating striae; circuli fine, especially so apically.

D. $\underset{\equiv}{\text{VII}}$, $\underset{\equiv}{\text{I}}$, 10, $\underset{=}{\text{I}}$, second spine 1 1/3 in total head length, first ray 2 1/5; A. 9, I (abnormal), fourth ray 2 3/4; caudal 1 1/4, deeply forked; least depth of caudal peduncle 2 1/5; pectoral 1 1/4; ventral 1 1/4.

Back dull brown, sides and below white, shot with silvery, especially on opercle. Dusky tip. Apparently no white lateral band.

Haugil radians Castelnau, Mém. Poiss. Afric. Australe, p. 49, 1861 (type locality, Natal). — Gilchrist, Cat. Fish. South Africa, p. 137, 1902 (reference). — Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, p. 317, 1917 (reference).

Depth 2 1/4, head 2 2/5, width 2 1/4. Snout 4 3/4 in head from snout tip; eye 2, much greater than snout or interorbital; maxillary reaches 2/5 in eye, expansion 2/4 in eye, length 2 1/5; teeth fine, villiform, in narrow bands in jaws with few anterior slightly enlarged; vomer & palatines each with very small (bands of) teeth, none on tongue; interorbital 4 2/5, little convex; 6 or 7 postero-superior orbital serrae; lower preorbital edge with 10 or 11 serrae, ridge with 7 or 8 smaller serrae; lower preopercle ridge and edge serrate, spine at angle of ridge large and narrow. Gill rakers 10+17, finely lanceolate, 1/2 of eye; gill filaments 1/3 gill rakers.

Scales 44 in lateral line to caudal base and 4 more on latter; 6 scales above lateral line, 15 below, 27

Depth 3 1/2 to 4 1/3; head 4 to 4 1/3. Snout 4 1/3 to 5 in head; eye 3 1/2 to 5, little longer to subequal with snout, 1 1/2 to 3 in interorbital. maxillary concealed; mouth forms obtuse angle; upper lip narrow, not over 1/2 eye; interorbital low; preorbital not notched, denticulated below.

Scales 31 to 33 in lateral series; 11 or 12 transversely; 3 or 4 series on cheeks. Soft vertical fins finely scaled. Pectoral axillary scale about 1/3 pectoral fin.

D. IV — I, 8, first spine 1 4/5 to 2 in head, first branched ray 1 1/4 to 1 1/2; A. III, 9, first ray 1 1/4; least depth of caudal peduncle 1 7/8; pectoral 1, reaches first dorsal origin; ventral 1 1/3, caudal 2 7/8 in rest of fish,

deeply emarginate.

Silvery, back greenish olive, with or without rather indistinct and interrupted darker longitudinal streaks. Small black spot at pectoral origin. Length 480 mm.

(Boulenger.)

Arabia, Natal, Zululand, Portuguese East Africa, Zanzibar, Seychelles, Ceylon, India, East Indies, Micronesia. Not included by Weber and Beaufort, though recorded from Sumatra by Bleeker. Pellegrin's record for Micronesia has also been ignored by most writers. Although Day says "Dr. Bleeker showed me this type of this species which agrees with M. Ceylonensis" British and South African writers ignore Bleeker's name.

Smilax oliveriana Day

Smilax oliveriana Day, Fishes of India, pt. 2, p. 357, 1876 (type locality, seas of India, ascending rivers); Fauna British India, Fishes, vol. 2, p. 354, 1889 (copied).

— Weber, Siboga Exped., vol. 57 Fische, 1913, p. 215 (Makassar, Sual, Pepela Bay, Rotti). — McCulloch, Records West Austral. Mus., vol. 1, pt. 2, 1912, p. 215 (Port Hedland). — Fowler, Copeia, No. 58, June 18, 1918, p. 63 (Philippines). — Tanaka, Fig. Illust. Fishes Japan, vol. 32, July 1, 1922, p. 602, pl. 141, fig. 407 (Kochi). — Fowler, Proc. Acad. Nat. Sci. Phila., 1927, p. 274 (Philippines).

Psammoperca waigiensis Boulenger, Cat. Fishes Brit. Mus., vol. 1, 1895, p. 365 (Victoria River, Australia, Hammond Island, Cebu, China Sea, Borneo, Singapore, Madras coast, Ceylon).

Depth $3\frac{2}{3}$; head $4\frac{1}{4}$, width $1\frac{1}{4}$. Snout 4 in head; eye 4, subequal with snout, $1\frac{3}{4}$ in interorbital, without adipose lids; maxillary end exposed; upper lip moderately thick, forms snout end; mouth cleft half mouth width; upper teeth present; preorbital slightly emarginate, truncated behind and serrated.

Scales 34 in lateral series; 11 transversely, 21 predorsal forward to front of snout. Scale exposures form half an irregular hexagon. Soft dorsal and anal scaly. Pectoral with short, angular, axillary scale.

D. $\frac{\text{IV}}{=}$ — $\frac{\text{I}, 8}{=}$, first spines strong, origin of first fin rather nearer caudal base than snout end, opposite eleventh lateral scale, high as second dorsal which

inserted opposite 22nd lateral scales; D. $\frac{III}{=}$, 9, with first $\frac{3}{4}$ in advance of second dorsal, equally high as second dorsal; caudal emarginate; pectoral rays 15, fin long as head without snout; ventral rays $\frac{I}{=}$, 5; least depth of caudal peduncle equals postorbital.

Olive along backs, lighter on sides and beneath. Second dorsal and caudal darks externally. Anal white. dull blotch in pectoral axil. Length not given. (Day.)

India.

2504

Mugil amarulus Valenciennes

Mugil amarulus Valenciennes,
Hist. Nat. Poiss., vol. 11, p. 133, 1836
(type locality, Java; Coromandel;
origin Coupan, River Pondicherry).
— Day, Fishes of India, pt. 2, p.
356, 1876 (types; Ind); Fauna
British India, Fishes, vol. 2, p.
352, 1889.

spine longest; caudal 1 1/10 to 1 1/5, deeply forked, slender lobes sharply pointed; least depth of caudal peduncle 2 3/4 to 2 7/8; pectoral 1 1/8 to 1 1/5; ventral 1 1/3 to 1 2/5.

Pale brown generally, scales on backs and upper surfaces dusted with darker brown dots, on backs at broad darker marginal areas. Sides and lower surfaces with bright silvery white tints. Median diffuse silvery white band from eye to caudal. Fins all pale or with grayish dusting terminally on verticals. Membrane between second and third dorsal spines dusky to blackish. Iris silvery white.

2505

Liza amarula Jordan and Seale, Bull. Bur. Fisher., vol. 26, p. 11, 1906 (1907) (Cavite). — Seale and Bean, Proc. U. S. Nat. Mus., vol. 33, p. 240, 1907 (Zamboanga).

Mugil oligolepis (part) Günther, Cat. Fish. Brit. Mus., vol. 3, p. 449, 1861 (synonymy).

8 + 22, slender, lanceolate, much longer than gill filaments or ½ eye.

Scales 10 or 11 + 11 + 4 or 5, of which last on caudal base, lateral line interrupted; 3 scales above lateral line, 8 below, 14 predorsal nearly midway in interorbital to median keel, 2 rows on cheek and preopercle flange naked; caudal with fine scales basally; basal scaly sheaths, one scale wide along dorsals and anals. Scales with 8 or 9 basal radiating and 4 or 5 incomplete auxiliaries; circuli fine.

D. VII, I, 9, I, second erect spine 1 1/8 to 1 1/5 in total head length, first ray 1 7/8 to ½; A. III, 9, I, second spine 1 4/5 to ½, often third

Depth 4 1/4; head 4 1/4. Snout 4 in head; eye 4, subequal with snout, 1 1/4 in interorbital, without adipose lids; maxillary end exposed; mouth forms rather obtuse angle, cleft 2/5 width; upper lip moderately thick; lower teeth minute; preorbital strongly bent, serrated.

Scales 36 in lateral series, 12 transversely, 18 predorsal forward to snout. Second dorsal and anal thickly scaled. Short pointed scale in pectoral axil.

D. IV — I, 8, spinous fin origin midway between front eye edge and caudal base, weak spines equal postorbital, second dorsal rather higher or base 2/3 height; A. III, 9, origin slightly before second dorsal, rather high, base 3/4 height, third

spine 3 1/4 in head; caudal lenated, central rays equal postorbital; pectoral rays 16, fin long as head without snout; ventral rays I, 5; least depth of caudal peduncle equals postorbital.

Bluish above, light on sides and beneath. Cheek with golden tinge. Outer caudal edge dark. Dark spot at pectoral origin. Length 115 mm. (Day.)

India, Java, Philippines. Day's description above mainly from one of the types about 66 mm. long. Although originally mentioned from Java in the collection of Kuhl and Van Hasselt this species is not included by Weber and Beaufort 1922.

2508

Mugil splendens De Vis

Mugil splendens De Vis, Proc. Linn. Soc. New South Wales, vol. 9, p. 871, March 4, 1885 (type locality, Cardwell, Queensland). — Mc Culloch, Mem. Austral. Mus., vol. 5, pt. 1, p. 117, June 29, 1929 (reference).

Mugil (Liza) splendens Mc Culloch and Whitley, Mem. Queensland Mus., vol. 8, pt. 2, p. 141, July 7, 1925 (reference).

10132, 10194, 10196, 10279 [D. 5505]. Macabalan Point Light, S. 31° E., 7.7 miles (8° 37' 15" N., 124° 36' E.), northern Mindanao. In 220 fathoms. August 5, 1909. Length 206 to 229 mm.

2862 [D. 5367]. Malabrigo Light, N. 81° E., 8 miles (13° 34' 37" N., 121° 07' 30" E.), Verde Island Passage. In 180 fathoms. February 22, 1909. Length 162 mm.

3243 and 3244 [D. 5517]. Mount Dromedario, S. 9° W., 10.9 miles (5° 20' 36" N., 119° 58' 51' E.), south of Tawi Tawi. In 240 fathoms. September 23, 1909. Length 155 to 160 mm.

2 examples [D. 5545]. Bobla Point, Tulayan Island, S. 19° W., 3 miles (6° 04' 45" N., 121° 20' 20" E.), Jolo Island vicinity. In 114 fathoms. September 15, 1909. Length 46 mm.

depth 4 1/5 in total; head 5. Snout 4 1/2 in head; orbit 4 1/2, equals snout, without adipose lids; maxillary end exposed; no teeth; lower lip strongly ciliated; no free space under chin; interorbital 1 4/5 in head; preorbital strongly serrated on hind limb.

Scales 40 in lateral series; 12 transversely, 21 predorsal forward to snout. Pectoral with moderately long axillary scale.

D. IV — I, 8, spinous fin origin opposite thirteenth lateral scale, soft fin origin opposite 25th lateral scale; A. III, 9, opposite second dorsal; pectoral nearly reaches opposite first dorsal

origin; root level with upper angle of opercle.

Golden, rather gray on back, yellow on lower part of head. Scales with shining margins, duller centers forming longitudinal bands. Pectoral with bright yellow elongated spot across base; above black spot extended on fin edge. Length 255 mm. (De Vis.)

Queensland.

2511

Inugil broussonetii Valenciennes

Inugil broussonnetii Valenciennes, Hist. Nat. Poiss., vol. 11, p. 117, 1836 (type locality, South Seas [= Cook Islands]). — Fowler, Mem. Bishop Mus., vol. 10, p. 128, 1928 (copied).

Cat. Fish. Brit. Mus., vol. 3, p. 453, 1861 (Compiled); Inugil broussonetii Günther, Journ. Bleeker, Act. Soc. Sci. Ind. Neerl. (Archip. Sumatra), vol. 8, p. 80, 1860.

1905 (reference).

Inugil broussonetii — Duncker and Mohr, Mitteil. Naturh. Mus. Hamburg, vol. 42, p. 131, 1926 (Inner and Outer Lutschan Harbors and Rein Bay, New Pommerania).

2511

Mugil broussonetii Valenciennes

Mugil broussonetii Valenciennes, Hist. Nat. Poiss., vol. 11, p. 117, 1836 (type locality, South Seas [= Cook Islands]). — Fowler, Mem. Bishop Mus., vol. 10, p. 128, 1928 (copied).

Cat. Fish. Brit. Mus., vol. (3) 453, 1861 (compiled); Mugil broussonetii Günther, Journ. Mus. Godeffroy, vol. 6, p. 218, 1881 (copied). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 217, 1905 (reference). — Mugil broussonetii Duncker and Mohr, Mitteil. Naturh. Mus. Hamburg, vol. 42, p. 131, 1926 (Howe and Luschan Harbors and Rein Bay, New Pommerania).

Mugil b

Mus. God

(copied)

Bull. Be

1905 (ref

[illegible] Tr

[illegible] Lacépède, tautotypie. (Inadmissible.)

3, rays 10 to 16. Caudal emarginate. Pectoral obtusely pointed, rays 14 to 17, upper longest. Ventrals behind pectoral base, fins close together and each with strong spine.

Fishes of moderate or small size, in the fresh and brackish waters of the tropical Indo Pacific. Besides Lates a West African species has been described and placed in a separate genus, Parakuhlia Pellegrin 1913, on account of the presence of pseudobranchiae. The uniformly silvery species live in the sea and those marked with dark spots enter fresh water estuaries or rivers.

Hannoperca Günther (= Paradules Klunzinger 1872 = Edelia Castelnau 1875 = Microperca Castelnau 1873) is from the fresh waters of Australia, with interrupted lateral line

Mugil communis (Volander) Valenciennes, Hist. Nat. Poiss., vol. 11, p. 117, 1836 (name in text).

Mugil lavaretoides (Volander) Valenciennes, Hist. Nat. Poiss., vol. 11, p. 117, 1836 (name in text).

Mugil strigatus (Volander) Valenciennes, Hist. Nat. Poiss., vol. 11, p. 118, 1836 (name in text). [Precluded same name by Richardson 1843 as synonym of Chanos chanos.]

Family Kuhliidae.

Body oblong, strongly compressed. Head moderate, compressed. Mouth large, protractile. Maxillary exposed, without supplemental bone. Teeth villiform, in bands in jaws, usually on vomer, palatines, entopterygoids and ectopterygoids. Preorbital and preopercle denticulate. Opercle with 2 spines. Gill membranes separate. Gill rakers long, slender. Pseudobranchiae usually large. Branchiostegals 6. Vertebrae 25, of which 14 or 15 caudal. Scales large, ciliated or denoid. Lateral line complete, tubes straight and occupy front half of exposed surface. Dorsals joined at bases, spines 10 to 12, rays 9 to 16. Anal equally long as soft dorsal, spines

Depth 4; head little over 5. Eyes with adipose lids; maxillary concealed; upper lip thick, chiefly medianly - and plump mandibular tubercle fits in above.

Scales in lateral series? Soft dorsal and anal scaly. Alar basal scale of first dorsal very pointed and longer than fin. Pectoral axillary scale $\frac{1}{3}$ of fin.

D. IV — I, 9, first 3 spines strong and pungent; A. III, 9; caudal forked; pectoral 7 times in total length.

Back gray, sides silvery, below white? Length 230 mm.

(Valenciennes.)

East Indies, Melanesia, Polynesia. An imperfectly known species, only reported by Bleeker from Sumatra and Duncker and Mohr from New Pommerania,

since originally described. Bleeker's[2] record is apparently not noticed by Weber and Beaufort, as the species is not included in their account of Indo-Australian species. Curiously Steindachner includes Mugil broussonetii"

[2] Sitzs. Ber. Akad. Wiss. Wien, math.-naturw. Kl., vol. 60, pt. 1, p. 315, 1869 (1870).

in a list of fishes from Mazatlan, though his record doubtless applies to one of the known species of the western coast of Mexico. This record does not seem to be noticed by American writers.

Duncker and Mohr give some items of additional value to the above description, though their materials all represented by young examples:

Adipose eyelid little developed;
D. IV — I, 10; A. III, 9 or 10; scales
36 to 38 in lateral series; first
dorsal and paired fins with small
keeled scales; pectoral rays 15
to 17; ventral 6. Second dorsal
and caudal blackish, bases darker.
First dorsal, anal and pectoral
with rays very little pigmented.
Ventral hyaline. Length 43 mm.

2516

Mugil schelì Forskål

Mugil crenilabis schelì Forskål, descript. Animal., pp. 14, 73, 1775 (type locality, Lohaja, Red Sea).

Mugil schelì Valenciennes, Hist. Nat. Poiss., vol. 11, p. 152, 1836 (Red Sea). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 410, 1861 (reference).

Mugil schelì.

Klunzinger, Verh. zool. bot. Ges. Wien, vol. 20, p. 827, 1870 (Red Sea). — Day, Fishes of India, pt. 2, p. 355, 1876. — Klunzinger, Fische Roth. Meer., p. 132, pl. 10, fig. 1, 1884. — Day, Fauna British India, Fishes, vol. 2, p. 50, 1889. — Pellegrin, Bull. Soc. Zool. France, vol. 39, p. 224, 1914 (Nossi Be, Madagascar). — Boulenger, Cat. Fresh Water

D. VI – I, I, 10, I, third spine 2 1/2 to 2 7/8 in total head length, first branched ray 2 1/5; A. III, 8, I, second spine 3 1/6, third ray 2 1/5; caudal 1 3/4, very slightly emarginate behind, resulting lobes slightly rounded; least depth of caudal peduncle 2 3/5; pectoral 1 1/2; ventral 2.

Warm brown generally, with 7 deep brown well defined longitudinal dark bands, converging on head toward eye. Fins all uniform pale brownish. Iris brownish.

Known previously only from the type. We have 2 other specimens which now establish the range of the species from the Philippines to Formosa.

Fish. Africa, vol. 4, p. 91, fig. 53, 1916 (Red Sea, Massowa, Seychelles, Zanzibar, Mombasa, Durban). — Fowler. Bull. Bishop Mus., vol. 21, pt. 1, p. 306, June 1925 (Natal). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 77, p. 209, 1925 (Alafoa Bay, Tongatabu, Suva); Proc. Acad. Nat. Sci. Philadelphia, 1929, p. 603 (Hong Kong). — Hardenberg, Treubia, vol. 13, livr. 1, p. 125, July 1931 (Roban River mouth, Sumatra). — Fowler, Mem. Bishop Mus., vol. 11, no. 5, p. 324, 1931 (Suva). — Pellegrin, Mém. Acad. Malgache, vol. 14, p. 175, fig. 95, 1933 (Madagascar; types of Mugil axillaris).

— Weber and Beaufort, Fish. Indo Austral. Archip., vol. 4, p. 252, 1922 (Nias; Java Sea, Batavia; Rusa Kambangan; Sumba; Kangeang; Saleyer; Makassar; Halmaheira; Ambon; Timor; Aru; Kaneks).

Admiralty Islands). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 77, p. 209, 1925 (Alafoa Bay).

— Barnard, Ann. South Afric. Mus., vol. 21, pt. 1, p. 306, June 1925 (Natal). — Fowler, Rusaie, Upia, Vavau, Nooon, Tongatabu, Suva); Proc. Acad. Nat. Sci. Philadelphia, 1929, p. 603 (Hong Kong). — Hardenberg, Treubia, vol. 13, livr. 1, p. 125, July 1931 (Roban River mouth, Sumatra). — Fowler, Mem. Bishop Mus., vol. 11, no. 5, p. 324, 1931 (Suva). — Pellegrin, Mém. Acad. Malgache, vol. 14, p. 175, fig. 95, 1933 (Madagascar; types of Mugil axillaris).

(2517

Fish. Africa, vol. 4, p. 91, fig. 53, 1916 (Red Sea, Massowa, Seychelles, Zanzibar, Mombasa, Durban). V— Fowler, Bull. Bishop Mus., No. 22, p. 32, 1925 (Samoa). — Duncker and Mohr, Mitteil. Naturh. Mus. Hamburg, Vol. 42, p. 131, 1926 (Yaka, Admiralty Islands). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 77, p. 209, 1925 (Alaiyoa Bay); Mem. Bishop Mus., vol. 10, p. 125, 1928 (Guam, Shortland Island, Kusaie, Apia, Savaii, Nevers, Tongatabu, Suva); Proc. Acad. Nat. Sci. Philadelphia, 1929, p. 603 (Hong Kong). — Hardenberg, Treubia, vol. 13, Lief. 1, p. 125, July 1931 (Rokan River mouth, Sumatra). — Fowler, Mem. Bishop Mus., vol. 11, No. 5, p. 324, 1931 (Suva). — Pellegrin, Mém. Acad. Malgache, vol. 14, p. 175, fig. 95, 1933 (Madagascar; types of Mugil axillaris).

lia)

pe sambra Klunzinger, Verh. zool.

[illegible] Wien vol 20 1870 p. 699 (Koseir)

e. No dark vertical band on cheek.

f. Dark lateral blotch persistent.

g. No whitish median axial line on body.

h. Black lateral blotch variable from

[616.] Baganga Bay, eastern Mindanao. Mar. 13, 1908. Length 82 mm.

9391. Puerto Bay, Mindoro. December 11, 1908. Length 44 mm.

51738. ~~Mapulon~~ U. S. N. M. Tutuila, Samoa. Bureau of Fisheries. Length 78 mm.

2518

Inugil schelii Günther, Cat. Fish. Brit. Mus., vol. 3, p. 410, 1861 (reference error).

Inugil schelii Weber, Siboga Exped., vol. 57, Fische, p. 140, 1913 (Macassar).

Chloristiastium awaleae new species.

Depth 3; head 2 1/3 to 2 3/5, width 2 to 2 1/2. Snout 4 2/5 to 4 1/2 in head from snout tip; eye 4 to 4 2/5, unequal with snout, greater than interorbital; maxillary reaches 2/3 to 4/5 in eye, expansion 1/4 in eye, length 2 1/3 to 2 2/5 in head from snout tip; teeth in villiform bands in jaws, in vomer and palatines; interorbital 5 to 5 1/2 in head, scarcely convex; preopercle with rather weak serrae; edge ^ small, distinct. Gill rakers 8+18, lanceolate, little longer than gill filaments or half of eye.

Scales 4 2 in lateral line to caudal base and 2 more on latter, 5 scales above, 17 below, about 30 predorsal forward to nostril, 11 or 12 rows across cheek to hind preopercle angle;

Mugil caeruleomaculatus Lacépède, Hist. Nat. Poiss., vol. 5, pp. 385, 389, 1803 (no type locality = probably Indo-Pacific). — Valenciennes, Hist. Nat. Poiss., vol. 11, p. 128, 1836 (Mauritius). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 445, 1861 (copied). — Martens, Preuss. Exped. Ost Asien, vol. 1, p. 395, 1876 (Bangkok; Manila). — Day, Fauna British [illegible] I, p. [illegible]

— Weber and Beaufort, Fish. Indo Austral. Archip., vol. 4, p. 250, 1922 (Pulu Weh; Java Sea; Flores; Waigiu). — Viniguerra, Ann. Mus. Civ. Stor. Nat. Genova, ser. 3, vol. 10, p. 598, 1921-26 (Sarawak)

→ — Kuncker and Mohr, Mitteil. Naturh. Mus. Hamburg, vol. 42, p. 131, 1926 (Hansa Bay, New Guinea).

Mugil caeruleomaculatus Lacépède, Hist. Nat. Poiss., vol. 5, pp. 385, 389, 1803 (no type locality = probably Indo-Pacific). — Valenciennes, Hist. Nat. Poiss., vol. 11, p. 128, 1836 (Mauritius). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 445, 1861 (copied). — Martens, Preuss. Exped. Ost Asien, vol. 1, p. 395, 1876 (Bangkok; Manila). — Day, Fauna British India, Fishes, vol. 2, p. 351, 1889. — Sauvage, Hist. Nat. Madagascar, Poiss., p. 398, pl. 43, figs. 2-a, 1891 (Madagascar). — Elera, Cat. Fauna Filipinas, vol. 1, p. 538, 1895 (Luzon; Manila). — Duncker and Mohr, Mitteil. Naturh. Mus. Hamburg, vol. 42, p. 131, 1926 (Hansa Bay, New Guinea).

Bodianus fasciatus Schneider, Syst.
Ichth. Bloch, 1801, pl. 65.
Cilphestes sambra Schneider, Syst. Ichth.
Bloch, 1801, pl. 51.
Mesoprion sambra Peters, Monatsber.
[illegible] Berlin. 1865 p. 111 (type).

bases of soft vertical fins broadly scaly; maxillary expansion with 4 or 5 transverse rows of scales; snout, preorbital and front interorbital ~~scale sparsely~~ naked. Scales with 12 basal radiating striae; 42 to 42 short apical denticles, in 3 series transversely; circuli rather fine.

D. VIII, I, 9, I or II, 10, I, third spine 2 3/5 to 2 2/3 in total head length, first branched ray 2 1/3; A. III, 8, I, second spine 2 1/2 to 2 3/5, first ray 2 to 2 1/2; caudal 1 3/4 to 1 4/5, truncate; least depth of caudal peduncle 2 3/5 to 3; pectoral 1 1/2 to 1 2/3; ventral 1 4/5.

Brown generally, little paler below. Median line from interorbital to spinous dorsal. From head to pale trunk longitudinally, upper extend from upper and

2520

— Pellegrin, Mém. Acad. Malgache, vol. 14, p. 174, 1933 (Madagascar, Mauritius, Réunion, Seychelles).

ring slender point behind
age, so that about 1 3/4 in rest
fish ; pectoral 1 1/6 in head,
rays I, 8; ventral rays I, 5,
inner t joined by membrane to
abdomen, first branched ray
extended as long filament reachin
caudal base

Brown above, under surface
pale to whitish. On sides of head
and body 3 broad blackish-brown
longitudinal bands; uppermost
from above eye, expanded as large
blotch over pectoral base and
reaches caudal base little over it
center; second band widest, runn
from side of snout through eye
and little below body axis also
on caudal base; third band along
lower side of head to lower pector
base and back until over last
anal ray bases. Dorsal with

Mugil coeruleomaculatus Bleeker, Nat. Tijds. Ned. Indië, vol. 2, p. (472) 484, 1851 (Rio; Batavia); vol. 6, p. 458, 1854 (Amboina); vol. 7, p. 228, 1854 (Macassar); vol. 8, p. 437, 1855 (Bonthaian, Celebes), p. 446 (Kokos-Keeling Islands); vol. 10, p. 347, 1856 (Rio, Bintang); vol. 11, p. 385, 1856 (Kajeli, Buru); vol. 12, p. 193, 1856 (Ternate), p. 215 (Nias), p. 230 (Batu); Act. Soc. Sci. Ind. Néerl., vol. 1, No. 3, p. 5, 1856 (Manado); vol. 2, No. 7, p. 5, 1857 (Amboina); Nat. Tijds. Ned. Indië, vol. 13, p. 479, 1857 (Prigi, Java); Act. Soc. Sci. Ind. Néerl., vol. 3, No. 4, p. 3, 1857-58 (Manado); vol. 3, No. 9, p. 2, 1857-58 (Padang), p. 4 (Trussan); Nat. Tijds. Ned. Indië, vol. 16, p. 27, 1858 (East

posterior edge of eye, diverge and broaden in body though none wide. Darts interspaces with third and fourth converging on caudal toward middle of its hind edge. Iris pale. Fins all light brown, but soft dorsal and anal each with black pale edged ocellus little smaller than eye.

Known only from the 2 examples described above. It differs at once from the preceding species Chlorististium sumunti, in the coloration.

22454. Togian Bay, Togian Island, Gulf of Tomini, Celebes, Dutch East Indies. November 19, 1909. Length 17 mm. Type Cat. No. U. S. N. M.

Indies; diagnosis in key); Act. Soc. Sci. Ind. Néerl., vol. 8 (Sumatra 8), p. 14, 1859 (Tandjong); Nat. Tijds. Ned. Indië, vol. 20, p. [illegible] 219, 1859-60 (Tandjon); vol. 22, p. 65, 1860 (Benculen), p. 249 (Timor); Act. Soc. Sci. Ind. Néerl., vol. 8 (Sumatra 9), p. 2, 1860 (Benculen), p. 5 (Telobobetang, Padang, Troussan); Nat. Tijds. Ned. Indië, vol. 22, p. 65, 1860 (Benculen), p. 249 (Timor); Ned. Tijds. Dierk., vol. 1, p. 240, 1863 (Abi); Verslag. Akad. Wet. Amsterdam, ser. 2, vol. 2, p. 293, 1868 (Rio, Bintang), p. 300 (Waigiu); Arch. Néerl. Sci. Nat. Harlem, vol. 13, p. 38, 1878 (New Guinea). — Borodin, Bull. Vanderbilt Marine Mus., vol. 1, art. 3, p. 76, 1932 (Brisbane).

9302

[2055.] Togian Bay, Togian Island. November 19, 1909. Length 55 mm. Paratype.

(For the late Bradshaw Swales, in slight appreciation of his general interest in natural history.")

Mugil coeruleo-maculatus Day, Fishes of India, pt. 2, p. 256, 1876.

Liza caeruleomaculata Fowler, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12, p. 502, pl. 11 (middle fig.), June 10, 1904 (Padang). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 217, 1905 (1906) (Lepia). — Jordan and Dickerson, Proc. U. S. Nat. Mus., vol. 34, p. 607, 1908 (Suva). — Seale, Philippine Journ. Sci., vol. 5, No. 4, p. 268, October 1910 (Sandakan). — Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 256, 1911 (Moen, Kusaie, Savaii, Tongatabu, Suva, Guam).

Genus Malakichthys Steindachner and Döderlein.

Malakichthys (Döderlein) Steindachner and Döderlein, Denksch. kk. Akad. Wiss. Wien, vol. 47, pt. 1, 1883, p. 240. Type Malakichthys griseus (Döderlein) Steindachner and Döderlein, monotypic.

Malacichthys Boulenger and Ogilvie Grant, Zool. Record, Pisces, 1883, p. 19. Type Malakichthys griseus (Döderlein) Steindachner and Döderlein.

Katsuma Smith and Pope, Proc. U. S. Nat. Mus., vol. 31, 1906, p. 472. Type Katsuma macrops Smith and Pope, orthotypic.

Body oblong, compressed. Head pointed. Eye large. Mouth large. Maxillary with supplemental bone. Villiform teeth in bands in jaws, on vomer and palatines, none on tongue; no canines. Double—

Mugil axillaris Valenciennes, Hist. Nat. Poiss., vol. 11, p. 131, 1836 (type locality, New Guinea; Mauritius). — Bleeker, Nat. Tijds. Ned. Indië, vol. 16, p. 280, 1858 (East Indies; diagnosis in key); vol. 17, p. 130, 1858-59 (Atapoepoe, Timor), p. 143 (Boleling, Bali); vol. 19, p. 333, 1859 (Karangbollang, Java); vol. 21, p. 138, 1860 (Muntok, Banka); vol. 22, p. 113, 1860 (Buru), p. 239 (Bali); Act. Soc. Sci. Ind. Néerl., vol. 8 (Sumatra 9), p. 3, 1860 (Benculen); Verslag. Akad. Wet. Amsterdam, vol. 12, p. 32, 1861 — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 444, 1861 (copied) (Singapore); Ned. Tijds. Dierk., vol. 1, p. 271, 1863 (Atapupu, Timor). — Kner, Reise Novara, Fische, p. 227, pl. 9, figs. 3-a, 1865 (side and lower view of head) (Shanghai). —

protruded long point at symphysis of lower jaw. Preopercle thin towards edge, with rather weak serral above and below angle. Opercle with 2 spines, thin, flat, short. Gill membranes free. Gill rakers long, slender. Branchiostegals 7. Scales moderate, finely ctenoid, thin, easily deciduous. Opercle, cheek and head above scaly, snout and jaws naked. Lateral line complete, high, about parallel with back and tubes occupy median third of each scale. Dorsal with 9 slender spines, in soft fin spine and 10 rays. Anal with 3 spines and 7 rays. Caudal emarginate. Pectoral long, pointed, upper rays longest. Ventral inserted slightly behind pectoral bases, spine long, fins close together.

Bleeker, Act. Soc. Sci. Ind. Néerl., vol. 6, no. 2, p. 34, 1871 (Doreh, New Guinea); Ned. Tijds. dierk., vol. 4, p. 143, 1873 (1874) (Amoy). — Alleyne and Macleay, Proc. Linn. Soc. New South Wales, vol. 11, p. 341, 1876 (Yule Island, Hall Sound, New Guinea). — Günther, Journ. Mus. Godeffroy, vol. 6, pt. 11, p. 216, pl. 120, fig. B, 1877 (Samoa, Fiji). — Macleay, Proc. Linn. Soc. New South Wales, vol. 7, p. 362, 1882 (New Guinea). — Veale, Occas. Pap. Bishop Mus., vol. 1, no. 3, p. 66, 1900 (1901) (Guam). — Chu, Bull. Biol. Soc. St. John's Univ., no. 1, p. 104, January 1931 (reference).

— Sauvage, Hist. Nat. Madagascar, Poiss., p. 397, pl. 43, figs. 1–a, 1891 (Madagascar). — Weber, Zool. Ergebn. Nederl. Ost Ind., vol. 3, p. 451, 1894 (Sumatra, Nias, Java, Madura, Bali, Timor, Celebes, Batjan, Ternate, Halmaheira).

An aberrant genus, suggestive of Limia, but the opercle armed as in the Perranidae.

2526

Mugil cylindricus Valenciennes, Hist. Nat. Poiss., vol. 11, p. 132, 1836 (type locality, Java, Collection Kuhl and Van V Hasselt). — Bleeker, Nat. Tijdsr. Ned. Indië, vol. 4, p. 266, 1853 (Benculen ?); Batavia); vol. 6, p. 51, 1854 (Lindangole, Halmaheera); vol. 9, p. 493, 1855 (Amasing and Madawang Rivers, Batjan); vol. 12, p. 193, 1856 (Ternate), p. 215 (Nias); Act. Soc. Sci. Ind. Neerl., vol. 1, No. 3, p. 5, 1856 (Manado). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 410, 1861 (reference).

Malakichthys griseus Steindachner and Döderlein.

Malakichthys griseus (Döderlein) Steindachner and Döderlein, Denks. dkw. Akad. Wiss. Wien, vol. 47, pt. 1, 1883, p. 242. Tokyo; vol. 48, pt. 1, 1884, pl. 2, figs. 1–1a. — Ishikawa and Matsuura, Prelim. Cat. Fish. Tokyo Mus., 1897, p. 57. (———). — Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, 1901, p. 353 (Tokyo). — Jordan and Richardson, Proc. U. S. Nat. Mus., vol. 37, 1910, p. 425, fig. 1 (Yokohama, Misaki, Odawara). — Snyder, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 413 (Kagoshima). — Iguka and Matsuura, Cat. Zool. Spec. Tokyo Mus., 1920, p. 154 (Kagoshima). — Jordan and Hubbs, Mem. Carnegie Mus., vol. 10, no. 2, 1925, p. 253 (Kagoshima and Shizuoka).

2527

~~Mugil melanocranus Richardson~~

Mugil melanocranus Richardson, Ichth. China Japan, p. 248, 1846 (type locality China Seas; Canton ?). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 410, 1861 (reference). — Bleeker, Ned. Tijds. Dierk., vol. 4, p. 143, 1873 (1874) (reference). — Chu, Biol. Bull. St. John's Univ., No. 1, p. 105, January 1931 (reference).

scales, fins otherwise naked. Lateral line complete. Two dorsals, entirely separate, first with 7 strong spines and rayed fin with weak spine and 10 rays. Anal with 3 slender, weak spines and 7 rays. Caudal truncate or slightly emarginate. Pectoral much shorter than ventral.

One species, of small size. Greatly aggressive, in a superficial way, of the American Centrofimus. (Βέλος, arrow; πέρκη, perch; with reference to its contour suggestive of an arrow head.)

2528

Imugil parsia (not Buchanan-Hamilton Hamilton) Bleeker, Nat. Tijds. Ned. Indië, vol. 3, p. 166, 1852 (Timor koepang; Batavia). — Günther, Journ. Mus. Godeffroy, vol. 6, pt. 11, p. 216, pl. 120, fig. B, 1876 (Samoa; Fiji...). — Veale, Occas. Pap. Bishop Mus., vol. 1, no. 3, p. 66, 1901 (Guam).

Satsuma microps Smith and Pope, Proc. U. S. Nat. Mus., vol. 31, 1906, p. 472, fig. 5. Kagoshima.

Malakichthys wakiyae Jordan and Hubbs, Mem. Carnegie Mus., vol. 10, no. 2, 1925, p. 233, pl. 10, fig. 2. Kagoshima Bay.

2529

Mugil bleekeri Günther

Mugil bleekeri (Günther, Cat. Fish. Brit. Mus., vol. 3, p. 445, 1861 (on Bleeker 1858). — Weber, Zool. Ergebn. Ned. Ost Ind., vol. 3, p. 451, 1894 (Banka; Timor); Siboga Exped., vol. 57, Fische, p. 139, 1913 (Kangeang Island, Saleyer).

Mugil borbonicus Bleeker, Nat. Tijdsr. Ned. Indië, vol. 16, p. 279, 1858 (type locality, East Indies [= Bourbon]; diagnosis in key); vol. 18, p. 361, 1859 (Blinjo, Banka).

Herops de Vis, Proc. Linn. Soc. New South Wales, vol. 9, 1885, p. 392. Type Herops munda de Vis, monotypic.

(Platyroma (non Leach 1817) Vaillant, Nomenclator Zool., 1882, p. 252. Type Holocentrus caudovittatus Lacépède, as Platyroma Vaillant proposed for Platyrome Lienard.

Boulengeria (non Dollo 1886) Fowler, Proc. Acad. Nat. Sci. Phila., 1906, p. 512. Type Julis mato Lesson, orthotypic.

Xyrichthys Jordan, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 655. Type Julis taeniurus Cuvier, orthotypic.

Agonostomus dorsalis Streets, Bull. U. S. Nat. Mus., No. 17, p. 102, 1878 (type locality, Samoa).

Mugil bleekeri (not Günther) Beaufort, Bijdr. Dierk. Amsterdam, vol. 19, p. 107, 1913 (Saonela, Waigiu).

Liza formosae Oshima, Ann. Carnegie Mus., vol. 13, Nos. 3-4, p. 251, pl. 12, fig. 2, April 25, 1922 (type locality, Anpin near Tainan).

depth 2 1/4 to 3; head 2 1/5 to 2 2/3, width 2 1/2 to 2 1/3. Snout 3 2/3 to 3 4/5 in head from snout tip; eye 2 11/13 to 3, greater than snout or interorbital; maxillary reaches 1/4 to 1/3 in eye, expansion 2 to 2 1/8 in eye, length 2 1/5 to 2 1/4 in head from snout tip; teeth villiform, in broad bands in jaws, on vomer and palatines; mandible with 2 external broad conic denticles; interorbital 4 3/7 to 4 4/5, level; preopercle edge denticulate; median opercular spine nearer lower, which most advanced. Gill rakers 6 + 21, lanceolate, longer than gill filaments or 1/2 of eye.

Scales 46 to 49 in lateral line to caudal base and 3 to 5 more on latter, 5 or 6 above, 12 or 13 below, 40 or 41 predorsal, 6 rows on cheek to preopercle ridge; fins with fine scales basally;

Depth $3\frac{3}{4}$ to $3\frac{7}{8}$; head $3\frac{3}{4}$ to $3\frac{7}{8}$, width $1\frac{2}{3}$. Snout $3\frac{3}{4}$ to $3\frac{7}{8}$ in head; eye $4\frac{1}{8}$ to $4\frac{1}{3}$, adipose lids cover $\frac{1}{2}$ iris behind, diameter $1\frac{2}{3}$ in interorbital; maxillary not reaching eye, length $3\frac{1}{3}$ to $3\frac{3}{4}$ in head; upper lip width $1\frac{4}{5}$ in pupil; mandibular angle would form broadly obtuse; interorbital $2\frac{1}{2}$ to $2\frac{3}{4}$ in head, broadly convex; lower and hind preorbital edges finely dentate. Gill rakers 26 to 43 + 38 to 44, finely lanceolate.

Scales 33 to 35 in axial lateral series to caudal base; 11 to 13 transversely, 19 to 29 predorsal. Axillary pectoral scale $\frac{1}{3}$ of fin. Soft vertical fins with small scales basally. Scales with 7 or 8 basal striae and 1 to 3

incomplete auxiliaries; 44 to 60 imperfect apical points, 4 or 5 transversely arranged basal elements; circuli very fine.

D. IV – I, 8, I, first spine 1 4/5 to 2 1/10 in head, first branched ray 1 7/8 to 2 1/8, origin of soft fin over first 1/4 of anal base; A. III, 9, I, first branched ray 1 4/5 to 2; least depth of caudal peduncle 2 1/8 to 2 3/4; pectoral 1 1/10 to 1 1/8, reaches to or little beyond spinous dorsal origin; ventral 1 2/5 to 1 3/4; caudal 3 2/5 to 3 3/4 in rest of body, fin deeply emarginate.

Gray, with 9 or 10 bright silvery, arrow-like marks along body, over nape dark. Fins transparent, black at pectoral base and caudal tips.

7217.

Aparri market. November 19, 1908.
Length 442 mm.

8912. Atulayan Bay, Lagonoy Bay,
Luzon. June 18, 1909. Length 328 mm.

Four examples. Bongao Island,
Tawi Tawi. February 23, 1908.
Length 68 to 110 mm. Poorly preserved.

Seven examples. Buena Vista,
Guimaras Island. January 14, 1909.
Length 60 to 114 mm.

One example. Chase Head, mouth
of stream near bay in brackish
water, Endeavour Strait, Palawan.
December 22, 1908. Length 105 mm.

Ten examples. Dumaca River,
Luzon. February 25, 1909. Length 44 to
69 mm.

34 examples. East side of Tagbalaran
Island, Bohol. April 9, 1908. Length 18
to 91 mm. Pectoral with axillary scale.

2 examples. Alibijaban Island, Rapu Rapu Gulf. March 6, 1909. Length 32 to 35 mm.

29 examples. Busuin Harbor, Burias Islands. March 8, 1909. Length 25 to 30 mm.

1 example. Cammahala Bay. March 11, 1909. Length 33 mm.

2 examples. Catuingan Bay, Masbate. April 18, 1908. Length 35 and 36 mm.

1 example. Caximiran Island, Balabac. January 2, 1909. Length 35 mm.

4 examples. Manlacao Island, west coast Bohol. April 8, 1908. Length 27 to 30 mm.

1 example. Sabatas Point, Samar. July 24, 1909. Length 37 mm.

1 example. Port Banalacan, Marinduque. February 23, 1909. Length 32 mm.

4 examples. Port Jamelo, Luzon. July 13, 1908. Length 28 or 29 mm.

No dark spot at pectoral origin in very young.

8398. Giant River, Port Dupon, Leyte. March 16, 1909. Length 264 & 283 mm. Two examples.

7264. Inamucan Bay, Mindanao. August 8, 1909. Length 283 mm. Two examples. Maagnak Stream, Lagonoy Gulf, Luzon. June 17, 1909. Length 115 mm.

9152. Malaga River. July 30, 1909. Length 245 mm.

7630, 7722. Malampaya River mouth, Palawan. December 26, 1908. Length 243 to 323 mm.

Three examples. Manila Bay, Luzon. December 6, 1907. Length 53 to 68 mm. Scales 34.

Four examples. Manila Bay. December 9, 1907. Length 64 to 124 mm. Scales 35 to 37.

all Trade.

Philippines, East Indies.

Dark spot not pronounced in young.

Three examples. Manila Bay. December 6, 1907. Length 53 & 68 mm. Scales 34.

One example. Manila Harbor. December 30, 1907. Length 45 mm. No adipose eyelids. Scales 36? Pectoral axillary scale? Poor specimen.

One example. Mansalay, Mindoro. June 4, 1908. Length 139 mm.

8489. Mantaquin Bay, Palawan. April 2, 1909. Length 282 mm.

8612, 8613. Matnog Bay, Luzon. May 31, 1909. Length 580 & 588 mm.

9293. Murcielagos Bay, Mindanao. August 9, 1909. Length 270 mm.

Three examples. Sabatas Point, Samar. July 24, 1909. Length 37 & 45 mm.

also close behind each side another white spot. Brown band, made up of dark brown dots, extends from above snout, over eye and back till below soft dorsal. Black band from side of snout, through eye and back medianly to caudal base. Another dark band from preorbital, along infraorbital backward broadly over cheek and opercle and obscure behind pectoral till over anal. dark margin narrowly along front of spinous dorsal. Along bases of soft dorsal and anal each with blackish line, same fins also with dusky subbasal longitudinal band extending back to tip of last ray in each fin. Fins otherwise

Two examples. Iakoda Bay, in river, Palawan. December 31, 1908. Length 148 to 167 mm. Scales 37 or 38.

46 examples. Pasacao River at Pasacao, Luzon. March 9, 1909. Length 32 to 112 mm. No adipose eyelids. Scales 32 or 33, with axillary pectoral scale. Soft vertical fins scaly. Bright silvery white. L. III, 9, I.

46 examples. Nogas Point, Panay. February 4, 1908. Length 38 to 64 mm. No adipose eyelids. Scales 36 to 38. Axillary pectoral scale short. Small dark spot at pectoral fin origin.

Three examples. Port San Pio Quinto, Camiguin Island. November 11, 1908. Length 38 to 43 mm.

One example. Port San Vicente, Palau Island. November 14, 1908. Length 38 mm.

predorsal, 2 rows on cheek; head naked except cheeks and opercles. Scales with 9 to 11 basal marginal striae; 25 to 48 apical denticles, with or without 2 series transversely; ~~scales~~ striae moderate.

D. VI — I, 9, I, third spine 2 2/5 to 2 1/2 in total head length, first ray 1 7/8 to 2; A. II, 8, I, second spine 3 to 3 1/8, first ray 1 7/8 to 2; caudal 1 2/5 to 1 1/2, deeply emarginate behind; least depth of caudal peduncle 3 2/5 to 3 3/4; pectoral 1 2/5 to 1 1/2; ventral 2 to 2 1/4.

Brown, paler to whitish on belly and under surface of head. Snout brown and mandible blackish terminally. Brown median line from occiput to spinous dorsal. Whitish triangular spot medianly in interorbital posteriorly and

6570, 6578, 7121, 7124, 7195 to 7197.
Port San Vicente. November 18, 1908.
Length 180 to 273 mm. No adipose
eyelids. Scales 38. Pectoral equals
head, axillary scale $\frac{1}{4}$ of fin.
A. III, 9, I.

6865, 6866. Pratas Reef.
October 25, 1909. Length 362 to 438 mm.
18 examples. Ragay River tidal,
Ragay Gulf, Luzon. March 10, 1909.
Length 58 to 86 mm.

7121, 7124. San Vicente Harbor.
November 13, 1908. Length 208 to 447 mm.

A654, A655. Simalue Sibi Sibi
Island, north of Tawi Tawi. September
23, 1909. Length 404 to 423 mm.

A615. Tungaan Island. September
21, 1909. Length 385 mm.

7715. Virinao Island, Takoda Bay,
Palawan. December 30, 1908. Length 380 mm.
Pectoral $3\frac{1}{4}$ in fish without caudal.

Depth 3 to 3 1/3; head 2 2/5 to 2 2/3, width 2 1/10 to 2 1/2. Snout 4 to 4 1/5 in head from snout tip; eye 3 to 3 2/5, much greater than snout or interorbital; maxillary reaches 2/5 to 1/2 in eye, expansion 3 to 3 1/2 in eye, length 2 1/2 in head; teeth apparently uniserial, even, minute and only in jaws, none on vomer or palatines; interorbital 4 1/2 to 4 3/4, nearly level; preopercle ridge entire, edge finely serrated. Gill rakers 6+18, finely lanceolate, slender, nearly double gill filaments or 2 1/5 in eye.

Scales 22 in median lateral series to caudal base + more on latter, tubes 6 in lateral line which not extending beyond spinous dorsal, 9 scales transversely, 6

8294. Sorsogon, Luzon. March 12, 1909. Length 447 mm.

Eleven examples. Varadero Bay, Mindoro, in small stream at head of bay. July 24, 1908. Length 40 to 80 mm.

8522. Verde del Nur Island. April 6, 1909. Length 292 mm.

Six examples. Zamboanga Canal. October 8, 1909. Length 55 to 82 mm.

A916. Kema, Gulf of Celebes, Celebes, Dutch East Indies. November 13, 1909. Length 351 mm.

Five examples. Sifu Bay, Boero Island. December 10, 1909. Length 97 to 111 mm.

A1279 to A1281. Rabi, Boero Island. December 9, 1909. Length 294 to 340 mm.

Amia parvula Smith and Radcliffe

Amia parvula Smith and Radcliffe,
Proc. U. S. Nat. Mus., vol. 41, 1912, p. 432,
pl. 34, fig. 2. Tataan Pass, Tawi Tawi
Group and Taboon Island, Luzon.

Pectoral fin and caudal fin. 2539

A. M. N. H., two examples. Delagoa Bay, Portuguese East Africa. H. W. Bell Marley. 1922. Length 149 to 169 mm.

23059. Ekki, Bouro Island. December 9, 1909. Length 111 mm.

23891 to 23894. Pendeka Island, Buton Strait. December 15, 1909. Length 63 to 86 mm.

13705, 13706, 13709, 16227, 16228, 21122. Cape Kait, Lebani Bay, Celebes. December 29, 1909. Length 81 to 106 mm.

9504, 14874, 23398, 23877. Doelopo and Pasejoyo Islands, Gulf of Tomini, Celebes. November 16, 1909. Length 80 to 155 mm.

20808, 24032 to 24035. Labuandata Bay, Gulf of Boni, Celebes. December 18, 1909. Length 56 to 90 mm.

7213 and 7213, ~~[illegible]~~ Limbe Strait, north of Celebes. November 9, 1909. Length 157 to 165 mm.

2540

Mugil hornelli (Fowler)

Liza hornelli Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 75, p. 37, 1923 (type locality, Tananarive, Madagascar).

depth 4 1/8; head 3 2/5, width 1 4/5. Snout 4 1/5 in head; eye 4, greater than eye, without adipose lids; maxillary rather small, not completely shielded by preorbital, length 3 1/4 in head; upper lip moderately wide; mouth as seen below would form obtuse angle; interorbital 2 3/5, broadly convex. Gill rakers 21+ 30, finely lanceolate, 1 1/4 in gill filaments, which 1 3/4 in eye.

Scales 30 in median lateral series to caudal base; 9 transversely, 13 predorsal forward to occiput. Dorsal and anal scaly basally over rayed portion, also caudal base. Scales with 7 basal radiating striae; 27 to 44 apical denticles; circuli moderate, coarser apically.

dusky bar at base. Pectoral very pale pink.

43 examples. Surigao, Mindanao. May 8, 1908. Length 34 to 62 mm.

17 examples. Tataan, Simalue Island, Tawi Tawi Group, Sulu Archipelago. February 18-20, 1908. Length 20 to 41 mm.

12 examples. Banawan and Si Amil Islands, vicinity Sibuko Bay, Borneo. September 27, 1909. Length 28 to 36 mm.

21111. Cape Kait, Libani Bay, Celebes. December 29, 1909. Length 40 mm.

3 examples. Great Tobea Island, Buton Strait. December 15, 1909. Length 18 to 21 mm.

27 examples. Tobea Island. December 15, 1909. Length 16 to 36 mm.

D. IV — I, 8, I, first spine 1 1/2 in head, second branched ray 1 2/3; A. III, 9, I, third spine longest, fin origin inserted well before second dorsal origin; caudal 1, emarginate behind; least depth of caudal peduncle 2 1/3; pectoral 1 1/2, fin rays II, 13; ventral rays I, 5, fin 1 1/2 in head.

Dull olivaceous brown on back and upper surfaces of body, sides and below silvery white. Iris pale or gray white. Dorsals and caudal tinged with dusky. Pectoral little duller. Anal dusky medianly, edged paler. Ventral whitish.

Madagascar. Thought to differ chiefly in its dark paired fins.

hyaline. Ventral olivaceous, dusky toward base.

1 example. Sulade Island, vicinity of Jolo. September 17, 1909. Length 32 mm.

1 example. San Miguel Harbor, Tigao Island. April 2, 1908. Length 27 mm.

2 examples. San Pascual, Burias Island. March 8, 1909. Length 31 to 40 mm. Male with buccal ova.

17 examples. Northern Lagoon, Tumindao Island, Tawi Tawi Group, Sulu Archipelago. February 26, 1908. Length 39 to 51 mm. [319, 320]. Male with with dull golden buccal ova. Pale reddish dusky, reds becoming geranium on head and silvery below. Iris like adjacent head. First dorsal with dark brown blotches on membranes. Second dorsal pink, dusky at base. Caudal, anal and ventral pink, latter with

2543

A. H. V. P., No. 51095. Tananarive
Madagascar, M. Lamberton!
Purchased. Length 73 mm.
Type.

15 examples. Yaboon Island, Ragay Bay, Ragay Gulf, Luzon Island. March 10, 1909. Length 22 to 48 mm. [1292]. Body with brassy luster or sheen. Entire side, head and body with many punctulations of olive. A small black spot at beginning of lateral line and another on head near scale anterior; few blackish dots irregularly on curve of lateral line. First dorsal olivaceous, with brassy tint, second membrane with large black blotch terminally and rest of fin slightly clouded darker, also small rounded black blotch in middle of sixth membrane. Second dorsal pale olive with dusky bar through base. Anal without markings, slightly pinkish. Caudal slightly dusky, with an olive shade. Pectoral

2544

Mugil atherinoides Duncker and Mohr

Mugil atherinoides Duncker and Mohr, Mitteil. Naturh. Mus. Hamburg, vol. 42, p. 133, figs. 7–8, 1926 (type locality, Cape Beechy; Simpson Harbor; Varangoi; Jacquinot Bay; Montague Bay, New Pommerania). — Fowler, Mem. Bishop Mus., vol. 10, p. 125, 1928 (compiled).

grayish, though the second membrane not darker than the rest of the fin, as in most all our specimens. band given in this description.
Bleeker shows the predorsal scales large.

Example.

1 Bayabong River, Tablayan Bay, Mindoro Strait. December 13, 1908. Length 31 mm.

2 examples. Davao, Mindanao Island. May 16, 1908. Length 30 mm.

11514 to 11517. Aparri River, Luzon. February 25, 1907. Length 80 to 161 mm. 17 examples.

8 examples. Malaga River, Leyte Island. July 28, 1909. Length 120 mm.

5338 and 5339. Iponan River, Camp Overton, Mindanao Island. August 6, 1909. Length 88 to 122 mm. 7 examples.

Depth 3 1/2; head 3, width 2.
Snout 3 1/3 in head from snout tip; eye 2 1/2, greater than snout, largely facing below, without adipose lids; maxillary reaches about 9/10 to eye, about 3 1/3 in head; row of fine teeth above, none below; mandible wide, nearly truncate in front, as seen below; lips small, not fleshy; interorbital apparently flat.

Scales 29 to 33 in lateral line. Only belly scales ctenoid. Ventral with small axillary scale (none shown on pectoral).

D. IV — I, 8; first spine 2 in total head length, first branched ray 2, second dorsal origin over middle of anal; A. II, 9 to 11, first branched ray 1 7/8; caudal 1 3/5, emarginate behind; least depth of caudal peduncle 2 3/4;

pectoral I $\frac{3}{5}$, rays 15 or 16; ventral rays $\frac{I}{\equiv}$, 5; fin 2 in total head.

Yellowish brown, darker on back. Bright silvery on sides and belly, with dark line axially along middle of side. Length 19 mm. (Deuchler and Mohr.)

Melanesia.

preopercle yellowish. Hind opercle edge orange. Margins of soft dorsal and anal, and caudal tips, vermilion. Caudal dusky vermilion largely, fading pure hyaline on inner margin. Pectorals orange, axil scarlet and tips of outer rays bluish white.

2547

Mugil macrolepis Andrew Smith →

Mugil macrolepis Andrew Smith,
Illustr. Zool. South Africa, no pagination,
pl. 28, fig. 2, 1849 (type locality,
Rivers and fresh waters of
South Africa). — Castelnau, Mem.
Poiss. Afrique Australe, p. 47, 1861
(Gamtoos River near Algoa Bay). —
~~Günther, Cat. Fish. Brit. Mus., vol.~~
~~4, p. 447, 1880 (~~
Boulenger, Cat. Fresh Water Fish. South
Africa, vol. 4, p. 94, fig. 56, 1916 (Cape
of Good Hope, Durban, Natal, Zululand
— Barnard, Ann. South Afric. Mus., vol. 21,
pt. 1, p. 309; pl. 12, fig. 2, June 1925
(Algoa Bay; Natal; Zululand).

↙
→ — Fowler, Mem. Bishop Mus., vol.

2547

Mugil macrolepis Andrew Smith

Mugil macrolepis Andrew Smith, Illustr. Zool. South Africa, no pagination, pl. 28, fig. 2, 1849 (type locality, Rivers and fresh water lakes of South Africa). — Castelnau, Mém. Poiss. Afrique Australe, p. 47, 1861 (Gamtoos River near Algoa Bay). — ~~Günther, Cat. Fish. Brit. Mus., vol. 4, p. 447, 1880~~ Boulenger, Cat. Fresh Water Fish. South Africa, vol. 4, p. 94, fig. 56, 1916 (Cape of Good Hope, Durban, Natal, Zululand, Rovuma River, Socotra, Seychelles, Rodriguez). — Gilchrist and Thompson, Ann. Durban Mus., vol. 1, no. 4, p. 316, 1917 (reference).

Bloch

— Fowler, Mem. Bishop Mus., vol.

— Schneider, Hyst. Schth. Block
p. 115, 1801 (copied).

of Good H
Rooima
Rodrigue
Thompso
vol. 1, ho
— Fowle

fringed tentacle. Centrogenys.

m.[2] Inner teeth of jaws depressible, hinged.

n'. Hind nostril not slit like;
usually some teeth canine like.

o.[1] Dorsal spines 6 to 8; anal spines feeble; size moderate or small.
Plectropomus

o.[2] Dorsal spines 9, rays 13 to 15; 3 anal spines strong, rays 7 or 8; size small.

p.[1] One or 2 curved canines on each side of mandible besides those in front of each jaw.
Variola

p.[2] No curved canines on side of mandible. Cephalopholis

o.[3] Dorsal spines 11, strong (rarely vary 9 or 10).

q.[1] Tubes of lateral line simple, without radiating ridges; size moderate small.

10, p. 124, 1928 (Kusaie, Vavau, Tonga, Eua, Ponapé, Jaluit, Apia, Pago Pago, Suva, Guam, Mahemo, Aitutaki, Bora Bora); Proc. Acad. Nat. Sci. Philadelphia, vol. , p. 595, 1929 (Shanghai), p. 603 (Hong Kong); Mem. Bishop Mus., vol. 11, no. 5, p. 324, 1931 (Suva).

— Pellegrin, Mem. Acad. Malgache, vol. 14, p. 178, fig. 97, 1933 (Rodriguez; Madagascar).

r.' Palatines toothed. Serranus

r.² Palatines toothless. Dory perodon

gf.² Each tube of lateral line with 4 to 6 strong radiating ridges; interorbital very wide, cranium short; dorsal spines low; size very large.

Mugil borneensis Bleeker, Nat.
Tijds. Ned. Indië, vol. 2, p. (193)
201, 1851 (type locality, Bandjermassing);
p. 472 (Rio); vol. 6, p. 204, 1854
(Timor, Kupang), p. 458 (Amboina);
vol. 7, p. 227, 1854 (Macassar); vol.
8, p. 152, 1855 (Bandjermassing); vol.
9, p. 284, 1855 (Manado, Celebes),
p. 418 (Bandjermassing); Act. Vor.
Vei. Ind. Neerl., vol. 1, No. 3, p. 9,
1856 (Macassar); Nat. Tijds. Ned.
Indië, vol. 16, p. 278, 1858 (East
Indies; diagnosis in key), p. 434
(Soengeidoeri, Borneo); Verslag.
Akad. Wet. Amsterdam, ser. 2,
vol. 2, p. 293, 1868 (Rio, Bintang).
(Günther, Cat. Fish. Brit. Mus., vol.
3, p. 448, 1861 (copied). — Kner, Reise
Novara, Fische, p. 228, 1865 (Tahiti).
— Bleeker,

Promicrops

m.[3] Hind nostril long vertical slit; no canine teeth; dorsal spines 10.

Promileptes

l.[3] Anthinal. Maxillary without supplemental bone; canines present but no depressible teeth; lateral line extends close along back, often angulated.

Anthias

k.[2] Grammatinal. Anal spines usually absent; scales very small and more or less imbedded in skin; opercle and preopercle with spines; dorsal spines 2 to 7.

Grammistes

j.[2] Plesiopinal. Two lateral lines, upper lost on upper surface of caudal peduncle - or under last dorsal rays and lower extends along side of tail medially; ventral soft spine and 4 soft rays.

Plesiops

— Day, Fishes of India, pt. 2, p. 357, pl. 76, fig. 1, 1876. — Günther, Journ. Mus. Godeffroy, vol. 6, p. 218, 1881 (on Kner). — Day, Fauna British India, Fishes, vol. 2, p. 353, fig. 115, 1889. — Weber, Zool. Ergebn. Ned. Ost Ind., vol. 3, p. 451, 1894 (Borneo, Sumatra, Java, Timor, Celebes, Amboina). — Elera, Cat. Fauna Filipinas, vol. 1, p. 538, 1895 (Santa Cruz, Luzon, Cavite). — Borodin, Bull. Vanderbilt

— Weber and Beaufort, Fish. Indo Austral. Archip., vol. 4, p. 249, 1922 (Nias; Kota Baru, Borneo; Ceram; Buru; Abi major; Saonek). — Vinciguerra, Ann. Mus. Civ. Stor. Nat. Genova, ser. 3, vol. 10, p. 397, 1921–26 (Sarawak).

Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 258, 1911 (Kusaie; Hawaii).

— Day, Fishes of India, pt. 2, p. 357, pl. 76, fig. 1, 1876. — Günther, Journ. Mus. Godeffroy, vol. 6, p. 218, 1881 (on Kner). — Day, Fauna British India, Fishes, vol. 2, p. 353, fig. 115, 1889. — Weber, Zool. Ergebn. Ned. Ost Ind., vol. 3, p. 451, 1894 (Borneo, Sumatra, Java, Timor, Celebes, Amboina). — Elera, Cat. Fauna Filipinas, vol. 1, p. 538, 1895 (Santa Cruz, Luzon, Cavite). — Borodin, Bull. Vanderbilt Marine Mus., vol. 1, art. 3, p. 76, 1932 (Arabo Bay, Nuka Hiva, Marquesas). — Fowler, Journ. Bombay Nat. Hist. Soc., vol. 33, no. 1, p. 108, September 30, 1928 (Bombay). —

Liza borneensis Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 258, 1911 (Kusaie, Hawaii).

Dchth. Ind. Heerl., ~~Haarlem~~ vol. 7, 1873-76,

pl. (47) 305, fig. 2.

Genus Lates Cuvier

Lates Cuvier, Hist. Nat. Poiss., vol. 2, 1828, p. 26. Type Perca nilotica Gmelin, designated by Gill, Proc. Acad. Nat. Sci. Phila., 1861, p. 52.

Pseudolates Alleyne and Macleay, Proc. Linn. Soc. New South Wales, vol. 1, 1877, p. 262. Type Pseudolates cavifrons Alleyne and Macleay, monotypic.

Body compressed, elongate. Mouth large, protractile. Maxillary exposed, with supplementary bone. Bands of villiform teeth in jaws, on vomer, ~~and~~ palatines and ectopterygoids; no teeth on tongue. Hind preopercle edge serrated, straight spine at angle and few on lower edge, anterior antrorse. Opercle ends in spine. Gill membranes separate. Pseudobranchiae very small or absent. Gill rakers

Mugil adustus Bleeker, Nat. Tijds. Ned. Indië, vol. 5, p. 503, 1853 (type locality, Padang, Sumatra).

Mugil troschelii Bleeker, Nat. Tijds. Ned. Indië, vol. 16, p. 277, 1858 (type locality, East Indies; diagnosis in key), p. 438 (Soengeidoeri, Borneo). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 448, 1861 (Point de Galle, Ceylon). — Schmeltz, Cat. Mus. Godeffroy, No. 4, p. 21, 1869 (Viti). — Macleay, Proc. Linn. Soc. New South Wales, vol. 7, p. 362, 1882 (New Guinea). — Day, Fauna British India, Fishes, vol. 2, p. 355, 1889. — Weber, Zool. Ergebn. Ned. Ost Ind., vol. 3, p. 451, 1894

1.' Body elongate; first low, membranes of spinous dorsal with edges deeply notched. Pleuropsis

2.' Body short; fins higher, soft vertical elevated or elongated, all rounded, membranes of spinous dorsal entire. Callopleuropsis

(Borneo, Sumatra, Java, Flores).
— Elera, Cat. Fauna Filipinas,
vol. 1, p. 538, 1895 (Manila; Luzon).
— Rutter, Proc. Acad. Nat. Sci.
Philadelphia, vol. , p. 70, 1897
(Swatow). — Weber, Siboga Exped.,
vol. 57, Fische, p. 139, 1913
(Kangeang Island; Macassar).
— Fowler and Bean, Proc. U. S.
Nat. Mus., vol. 62, p. 17, 1922 (Cebu).
— Vinciguerra, Ann. Mus. Civ. Stor.
Nat. Genova, ser. 3, vol. 10, p. 397, 1921-26
(Saravals).

Mugil troschelii Day, Fishes of India,
pt. 2, p. 358, 1876.

long. Branchiostegals 7. Vertebrae 25, of which 13 caudal. Scales moderate or rather large, finely ctenoid. Head partly scaled. Dorsal and anal in more or less distinct scaly sheath, soft portion covered with scales. Lateral line complete, extends on base or nearly to end of caudal fin; tubes straight, occupy basal half of scale exposure. Dorsal spines 7 or 8, and 1 before 10 to 12 rays, fifth subequal. Anal spines 3, rays 8 or 9, short. Caudal rounded. Pectoral rays 16 or 17, short, symmetrical, rounded. Ventral with strong spine and produced basal scale below pectoral base, fins close together.

Nile, Niger, Senegal; estuaries and coasts of south east Asia and north Australia.

Mugil troschelii ~~Martens~~.
Bleeker, Act. Soc. Sci. Ind.
Néerl., vol. 8 (Sumatra), p. (12) 80,
1859 (type locality, Benculen;
Batavia; Sungidiuri). — Martens,
Preuss. Exped. Ost Asien, vol. 1, p.
395, 1876 (Singapore). — Weber,
Nova Guinea, vol. 9, pt. 4, p. 569,
1913 (Seka Dorfern east of Humboldt
Bay). — Regan, Trans. Zool. Soc.
London, vol. 20, pt. 6, p. 276, 1914
(Mimika River). — Weber and
Beaufort, Fishes Indo-Austral.
Archip., vol. 4, p. 248, 1922 (Pulu Weh;
Sinabur; Borneo; Makassar; Kangeang; Flores;
Aru; North New Guinea).
— Klunzinger and Mohr, Mitteil. Naturh.
Mus. Hamburg, vol. 42, p. 130, 1926
(Liebliche Island, Varangoi River,
Zoller Bay, Simpson Harbor, New
Pommerania).
- Schmeltz, Cat. Mus. Godeffroy, No. 7, p. 50, 1879 (Viti).

Lates calcarifer (Bloch).

Holocentrus calcarifer Bloch, Naturg. Ausländ. Fische, vol. 4, 1790, p. 100, pl. 244. Japan. — Walbaum, Artedi Pisc., vol. 3, 1792, p. 640 (on Bloch). — Forster, Fauna Indica, 1795, p. 16. — Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 381, 384 (Japan).

Lates calcarifer Cuvier, Hist. Nat. Poiss., vol. 2, 1828, p. 100 (on Bloch). — Richardson, Ichth. China Jap., 1846, p. 222 n. (Canton). — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 68 (India, Ganges, China). — Day, Fishes of Malabar, 1865, p. 2; Proc. Zool. Soc. London, 1865, p. 5 (Cochin). — Günther, Proc. Zool. Soc. London, 1870, p. 824 (Fitzroy River). — Day, Fishes of India, pt. 1, 1875, p. 7, pl. 1, fig. 1. — O'Shaughnessy, Zool. Record, 1875 (1878), Pisces, p. 7. — Castelnau, Proc. Linn. Soc. New South Wales,

Liza troscheli Jordan and Evermann, Proc. U. S. Nat. Mus., vol. 25, p. 334, 1903 (Hokoto, Formosa). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. , 1905 (1906) (Pago Pago); vol. 26, p. 11, 1906 (1907) (Cavite). — Smith and Seale, Proc. Biol. Soc. Washington, vol. 19, p. 76, June 4, 1906 (Mindanao). — Evermann and Seale, Proc. U. S. Nat. Mus., vol. 31, p. 506, fig. 1, 1906 (Manila); Bull. Bur. Fisher., vol. 26, p. 240, 1906 (1907) (Manila). — Seale and Bean, Proc. U. S. Nat. Mus., vol. 33, p. 240, 1907 (Zamboanga). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, p. 244, 1907 (1908) (Lubang, Iloilo, Aparri); Mem. Carnegie Mus., vol. 4, no. 4, p. 176, 1909 (Takao; Hokoto). — Snyder, Proc.

vol. 3, 1878, p. (Norman and Fitzroy Rivers). — Klunzinger, Verh. zool.-bot. Gesell. Wien, vol. 30, pt. 1, 1879, p. 342 (Cleveland Bay, Queensland). — Meyer, Ann. Soc. Españ. Hist. Nat. Madrid, vol. 14, 1885, p. 8 (north Celebes). — Day, Fishes of India, Suppl., 1888, p. 779; Fauna Brit. India, vol. 1, 1889, p. 440, fig. 139. — Thurston, Notes Pearl Fisher. Manaar, 1890, p. 91 (Tuticorin and Pamban). — Kent, Great Barrier Reef, 1893, pp. 280, 396 (north of Keppel Bay). — Boulenger, Cat. Fishes Brit. Mus., vol. 1, 1895, p. 363 (Western India, Madras, Ganges, Burma, China, Annam, Malay Archipelago, Sarawak, Fitzroy River). — Elera, Cat. Fauna Filip., vol. 1, 1895, p. 457 (Mindoro and Calapan). — Kent, Natural. in Australia, 1897, pp. 169, 169 (Fitzroy in Queensland to Ashburton in West Australia). — ~~Waite, Rec. Australian Museum and Coodaburra.~~ — Stead,

U. S. Nat. Mus., vol. 42, p. 495, 1912 (Okinawa, Riu Kiu). — Jordan and Starks, Ann. Carnegie Mus., vol. 11, nos. 3-4, p. 439, November 5, 1917 (Ceylon). — Oshima, Ann. Carnegie Mus., vol. 12, nos. 2-4, p. 256, 1919 (Noban River; Hoboto; Takao); vol. 13, nos. 3-4, p. 256, April 25, 1922 (Babô, Pescadores Islands; Tabani; Takao; Burabu River; Ako, Formosa). — Reeves, Journ. Pan Pac. Res. Inst., vol. 3, no. 2, p. 8, 1927 (reference). Liza troscheli Kendall and ~~Blackiffer~~ Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 256, 1911 (Nukemo, Bora Bora, Ponape, Jaluit, Suva, Aitutaki, Funafuti, Tonga, Eua). — Chu, Biol. Bull. St. John's Univ., no. 1, p. 105, January 1931 (reference).

Fishes of Australia, 1906, p. 96 (West Australia and Queensland). — Seale, Philippine Journ. Sci., vol. 5, no. 4, 1910, p. 275 (Kandakan, Borneo). — Weber, Siboga Exped., vol. 57, Siboga 65, 1913, p. 215 (Makassar). — Jugmayer, Abhandl. Bayer. Akad. Wiss., vol. 26, pt. 6, 1913, p. 9 (Mekran and Oman). — Fowler, Copeia, no. 58, June 18, 1918, p. 63 (Philippines); Proc. Acad. Nat. Sci. Phila., 1927, p. 275 (San Fernando, Arani, Luzon, Philippines).

Plectropoma calcarifer Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, p. 109 (Java, Madura, Singapore, Banka, Borneo, Celebes); vol. 8, 1876-77, pl. (45) 322, fig. 3.

Plectropomus calcarifer Jordan and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 19 (Cavite).

Lutris calcarifer Kent, Great Barrier Reef, 1893, pl. 43, fig. 1.

Mugil compressus Günther, Cat. Fish. Brit. Mus., vol. 3, p. 451, 1861 (type locality, New South Wales). — Castelnau, Proc. Linn. Soc. New South Wales, vol. 3, p. , 1878 (Norman River). — Klunzinger, Sitzs. Ber. Akad. Wiss. Wien, math.-naturw. Kl., vol. 80, pt. 1, p. 395, 1879 (1880) (Port Darwin, Queensland). — Macleay, Proc. Linn. Soc. New South Wales, vol. 4, p. 421, 1880 (Port Darwin); vol. 5, pt. 2, p. 48, 1881 (reference). — Günther, Journ. Mus. Godeffroy, vol. 7, pt. 15, p. 217, pl. 123, fig. A, 1881 (Samoa, Ponape, Kandavu, Fiji). — Macleay, Proc. Linn. Soc. New South Wales, vol. 8, p. 269, 1883 (Normanby Island, New Guinea, in fresh water).

Plectropoma calcariferum Evermann and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 78 (Zamboanga).

Perca calcar Schneider, Syst. Ichth. Bloch, 1801, p. 89. Japan.

Holocentrus heptadactylus Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 344, 389. No locality.

Lates heptadactylus Cantor, Cat. Malayan Fishes, 1850, p. 1 (Pinang Sea, Malay Peninsula, Singapore).

Coius vacti Buchanan-Hamilton, Fishes of Ganges, 1822, pp. 86, 369, pl. 16, fig. 28. All mouths of Ganges River.

Lates nobilis Cuvier, Hist. Nat. Poiss., vol. 2, 1828, p. 96, pl. 13. Pondicherry. — Richardson, Ichth. China Jap., 1846, p. 222 (Canton, China).

Mugil (Liza) compressa Mc Culloch and Whitley, Mem. Queensland Mus., vol. 8, pt. 2, p. 141, July 7, 1925 (reference).

Liza compressa Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 218, 1905 (1906) (reference). — Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 256, 1911 (Kusaie). — Mc Culloch, Mem. Austral. Mus., vol. 5, pt. 1, p. 116, June 29, 1929 (reference).

Pseudolates coatesi Ogilby and Macleay, Proc. Linn. Soc. New South Wales, vol. 1, 1877, p. 262, pl. 3. Torres Straits or the coast of New Guinea.

Lates darwiniensis Macleay, Proc. Linn. Soc. New South Wales, vol. 2, 1878, p. 345. Port Darwin, Queensland.

Depth 3 to 3 1/6; head 2 3/4 to 2 7/8, width 3 1/8 to 3 1/5. Snout 4 3/4 to 5 3/4, in head from snout tip; eye 7 1/2 to 8, 1 2/5 to 1 1/2 in snout, equals interorbital; maxillary extends 1/2 to 3/4 an eye diameter beyond eye, expansion 7/8 to slightly greater than eye diameter, length 2 1/3 to 2 2/5 in head from snout tip; teeth villiform, in bands in jaws, on vomer, palatines and tongue; interorbital 7 1/2 to 8 1/8; hind preopercle edge finely serrated though serrae inconspicuous with

? Mugil cremilepis Castelnau, Mém. Poiss. Afrique Australe, p. 49, 1861 (type locality, "l'embouchure du Comptoos"). — Gilchrist, Cat. Fish. South Africa, p. 137, 1902 (reference).

Mugil smithii (not Rüppell) Günther, Cat. Fish. Brit. Mus., vol. 3, p. 447, fig. (head), 1861 (Cape of Good Hope). — Vaillant, Hist. Nat. Madagascar, Poiss., p. 399, pl. 41 B, figs. 4—a, 1891 (Madagascar). — Gilchrist, Cat. Fish. South Africa, vol. 1, p. 137, 1902 (reference). — Regan, Ann. Natal Mus., vol. 1, no. 3, p. 243, 1908 (Kosi Bay).

Mugil smithi Pellegrin, Bull. Soc. Zool. France, vol. 39, p. 225, 1914 (Fort Dauphin, Madagascar).

age, 3 or 4 spines along lower edge and larger spine at angle; opercular spine little smaller than spine at preopercle angle. Gill rakers 4+16, lanceolate, longer than gill filaments and equal eye. Scales 45 to 56 in lateral line to caudal base and 7 to 9 more on latter, 6 or 7 above, 10 to 14 below, 27 or 28 predorsal though not quite extending opposite eye; 10 rows extend across cheek to preopercle ridge, flange scaleless; muzzle, including maxillary, infraorbitals and interorbital naked; small scales extend over most soft rayed fins. Scales with 9 or 10 basal radiating striae, 98 to 315 rather obsolete apical denticles with about 32 to 50 transverse series of basal elements and circuli

Mugil rodericensis Günther, Ann. Mag. Nat. Hist., ser. 4, vol. 17, p. 397, 1876 (type locality, "Fresh water in Rodriguez)"; Philos. Trans. Roy. Soc. London, vol. 188, p. 471, 1879 (type). — Sauvage, Hist. Nat. Madagascar, Poiss., p. 399, pl. 42, figs. 4-a, 1891 (Rodriguez).

Mugil rechingeri Steindachner, Sitzs. Ber. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 115, pt. 1, p. 1416, 1906 (type locality, Upolu, Samoa).

fine.

D. VII, I, 10, I or 11, I, third spine 2 to 2 1/3 in total head length, third ray 2 1/5 to 2 1/3; A. III, 8, I, third spine 4 4/5 to 5 1/2, third ray 2 1/5 to 2 1/2; caudal 1 3/5 to 1 1/2, rounded behind; least depth of caudal peduncle 2 to 2 4/5; pectoral 2 to 2 1/8; ventral 1 3/4 to 1 4/5.

Back brown, lower sides and under surface pale to whitish, with silvery white sheen. Vertical fins all brown, paired fins pales. Lower side of head silvery white. Iris brown.

Oman, India, Burma, East Indies, Philippines, China, Japan, North Australia.

Inugil diadema Gilchrist and Thompson, Ann. South African Mus., vol. 11, no. 2, p. 42, 1911 (type locality, Durban Bay); Ann. Durban Mus., vol. 1, no. 4, p. 316, 1917 (reference). — Barnard, Ann. South Afric. Mus., vol. 21, pt. 1, p. 309, June 1925 (type).

? Liza parva Aoshima, Ann. Carnegie Mus., vol. 13, nos. 3–4, p. 253, pl. 11, fig. 2, April 25, 1922 (type locality, Anping, Formosa).

Genus Psammoperca Richardson.

Psammoperca Richardson, Zool. Voy. Erebus and Terror, Ichth., 1846, p. 115. Type Psammoperca datnioides Richardson. = Labrax waigiensis Cuvier, monotypic.

Cniodon Müller and Troschel, Horae Ichth., vol. 3, 1849, p. 21. Type Cniodon chinensis Müller and Troschel. monotypic.

Hypopterus Gill, Proc. Acad. Nat. Sci. Phila., 1861, p. 50. Type Psammoperca macroptera Günther, monotypic.

Body compressed. Mouth rather large, protractile. Maxillary exposed, with supplemental bone. Small, crowded, granular teeth in jaws and on vomer, palatines and ectopterygoids. Tongue with small patch of teeth posteriorly. Preopercle with hind edge serrated,

2561

~~Ahigil pescadorensis Ashima~~

? Liza pescadorensis Ashima, Ann. Carnegie Mus., vol. 13, nos. 3-4, p. 254, pl. 12, fig. 1, April 25, 1922 (type locality, Bako, Pescadores Islands, Tobo, Formosa).

both above and below.

Vaken 46 in lateral line to caudal base and 5 more on latter; 5 scales above and 15 below, 28 predorsal forward near end of snout, 9 rows on cheek to preopercle edge; soft vertical fins and ventrals scaly over basal half of each fin at least and pectoral with narrower scaly basal area. Head largely covered with small scales and about 5 rows transversely on maxillary. Lateral line well arched, especially below spinous dorsal, tubes all large, well exposed and simple. Scales with 11 basal nearly parallel striae; 58 to 62 small apical denticles, in 2 series transversely; circuli very fine.

depth 3 1/3 to 3 2/3; head 3 1/5 to 3 3/4, width 1 1/2 to 1 3/4. Snout 3 3/4 to 4 in head; eye 3 1/4 to 4 1/2, much greater than snout, 1 1/2 to 1 4/5 in interorbital, adipose lids barely cover 1/4 of iris; mouth width 3 1/10 to 3 1/3 in head; maxillary not reaching eye, exposed, length 4 7/8 to 5 in head; upper lip moderately wide, ↑ or about 1/2 of pupil. width 3 2/5 in eye; ~~maxillary well exposed when mouth closed~~; interorbital 2 2/5 to 2 4/5, broadly convex; lower preorbital edge ↑ serrate. Gill rakers 20 to 34+ 36 to 52, finely lanceolate, 1 1/4 to 1 3/5 in gill filaments, which 1 1/8 to 1 1/4 in eye.

Scales 30 to 35 in median or axial lateral series to caudal base; 11 or 12 transversely, 19 to 25 predorsal. No pectoral axillary scale. Soft vertical fins with small scales basally. Scales with 5 or 11 basal

radiating striae; 0 to 148 weak apical denticles, with 3 or 4 transverse series of basal elements; circuli fine.

D. IV — I, 8, I, first spine 1 2/3 to 1 9/10 in head, first branched ray 1 2/3 to 1 7/8, soft dorsal origin opposite last fourth of anal base or totally behind same; A. III, 9, I, third spine 3, first branched ray 1 4/5 to 2; caudal 1 1/6 to 1 1/4, concave behind; least depth of caudal peduncle 1 9/10 to 2 1/2; pectoral 1 1/8 to 1 3/5; ventral 1 2/3 to 1 4/5.

Back brown, side and below paler to whitish. Iris slate gray. Dorsal caudal and pectoral brownish, other fins whitish, without markings and no dark spot at pectoral origin.

2564

59 examples. Bayaong River, four miles from mouth Tablayan Bay, Mindoro. December 13, 1908. Length 36 to 83 mm. No adipose eyelids. No axillary pectoral scale. Scales 32 to 34. A. III, 9, I.

Five examples. Bangao Island, Tawi Tawi. February 23, 1908. Length 64 to 96 mm. Scales 31 to 33. Specimens in poor condition.

Seven examples. Cabugao River, Catanduanes Island, east coast Luzon. June 9, 1909. Length 80 to 100 mm. No adipose eyelids. Scales 33. Pectoral 1/5 to 1/4 in head, without axillary scale. A. III, 9, I or III, 10, I.

crossed by bright orange brown stripes;
one through eye and median on side
to caudal; similar one from snout
below eye to caudal; narrower
stripe from pectoral base along
anal base uniting on lower edge of
caudal peduncle; one from snout
above eye following outline of back,
ends at caudal base; shorter stripe
below, behind eye, merges with other
under space between dorsals; dorsal
stripe median surrounding fin; two
median bright stripes connected by
8 narrow transverse bars, sometimes
reducing silvery interspaces to circular
spots. Spinous dorsal yellowish,

2565

Four examples: Imagnat Stream, Lagonoy Gulf, Luzon. June 17, 1909. Length 85 to 97 mm. No adipose eyelids. Scales 33. No axillary pectoral scale.

Six examples. Mahinog, Camiguin Island, in brackish water. August 3, 1909. Length 122 to 158 mm.

Seven examples. Malabon market. August 8, 1908. Length 97 to 180 mm. Scales 31 to 33.

9154. Malaga River, July 30, 1909. Length 230 mm. Scales 31.

6701. Manila market, Luzon. August 4, 1908. Length 370 mm. Scales 30.

7720. Iakorda Bay, in river, Palawan. December 30, 1908. Length 252 mm.

3 examples. Beach at village near Chase Head, Endeavor Strait, Palawan. December 22, 1908. Length 38 to 42 mm.

16579 and 23195. Catbalogan, Samar Island. April 15, 1905. Length 42 to 49 mm.

3 examples. Cebu market. March 20, 1909. Length 45 to 52 mm.

1 example. Cebu market. March 28, 1909. Length 51 mm.

14 examples. Cebu market. August 28, 1909. Length 46 to 57 mm.

5 examples. Mactan Island. August 31, 1909. Length 32 to 43 mm.

3 examples. Malcochin Harbor, Linapacan Island. December 19, 1908. Length 34 to 39 mm. [948.] Bright silvery gray,

2566

Two examples. Jaboda Bay, in river, Palawan. December 31, 1908. Length 40 to 162 mm. No adipose eyelids. Scales 31 to 33, . No axillary pectoral scale. A. III, 9, I. Pectoral 1 1/4 in head.

7394, 7397, 7398. Pangauran River, Port Caltom, Busuanga Island. December 16, 1908. Length 235 to 248 mm. Scales 30 to 32.

One example. Pasacao, Pasacao River, Luzon. March 9, 1909. Length 95 mm. Scales 31. Pectoral 1 1/3 in head.

Two examples. Port San Pio Quinto, Caniguin Island. March 11, 1908. Length 33 to 35 mm.

Nine examples. Pucot River, Mariveles, Manila Bay, Luzon. January 29, 1909. Length 81 to 110 mm. No adipose eyelids. Scales 31 or 32.

interspaces; first above eye begins in middle of interorbital where forming a v-shaped mark; second above eye and back towards upper edge of caudal peduncle; third on upper side of snout through eye, broadens on body, back to middle of upper half of caudal base; fourth from lower side of snout through eye back to middle of lower half of caudal base, broadens on body and broken as series of whitish blotches; fifth from end of maxillary to caudal base and back along side of abdomen. Iris whitish. Fins all pale or gray, membranes of spinous dorsal dusky.

East Indies, Philippines.

Two examples. Varadero Bay, Luzon. July 23, 1908. Length 31 to 54 mm. No adipose eyelids. Scales 32 in lateral series. Preorbital with slight notch in front. No axillary pectoral scale. Soft dorsal above & eighth anal ray base. A. III, 9, I. Pectoral little longer than head, with small dark spot at origin.

One example. Limbe Island, Celebes. November 12, 1909. Length 27 mm.

19 examples. Cammahala Bay, Luzon. March 11, 1909.
Length 33 to 51 mm.

23649. Caracaran, Batan Island.
June 6, 1909. Length 45 ± 50 mm. 2 examples.

10 examples. Catainganan Bay, April 19, 1908. Length 40 to 52 mm.

16103 to 16106. Catainganan Bay, Masbate Island. May 14, 1909. Length 41 to 43 mm.

22 examples. Endeavor Strait, Palawan Island. December 22, 1908. Length 34 to 48 mm.

122, 123, 129, 24074. Endeavor Strait. December 23, 1908. Length 35 to 44 mm.

23300. Makeri Island, Palawan Island. April 5, 1909. Length 49 mm.

3 examples. Mantacao Island, west coast Bohol. April 8, 1908. Length 40 to 44 mm.

21970. Murcielagos Bay, Mindanao. August 9, 1909. Length 72 mm.

~~240~~ examples. Near Palag Bay, Luzon. June 16, 1909. Length 38 to 48 mm.

9 examples. Philippines. Length 41 to 53 mm.

8039 to 8041. Jay-abas River, small river at left of lower course, Marinduque. February 25, 1909. Length 170 to 266 mms. Scales 29 to 31.

20127. Ulugan Bay, near mouth of Bakelé River, Palawan. December 28, 1908. Length 75 mm.

A 810. Zamboanga River, Zamboanga. October 9, 1909. Length 320 mms. Scales 30.

One example. Kema, Gulf of Tomini, Celebes, Dutch East Indies. November 13, 1909. Length 60 mm. Scales 32.?

and whole top of head naked.
Lateral line with enlarged tubes,
each with small basal scale. Scales with 10 to
17 basal radiating striae; 64 to 109
apical denticles, with 1 or 2 transverse
series of basal elements; ~~anack~~ circuli
fine.

D. VII—I, 9, I, third spine 1 1/2 to 1 3/5 in
total head length, first ray 1 2/5 to 1 1/2;
A. II, 8, I, second spine 2 1/3 to 2 2/3, first
ray 1 3/4 to 1 4/5; caudal 1 1/5 to 1 1/4,
emarginate; least depth of caudal
peduncle 2 7/8 to 3; pectoral 1 3/5 to 1 2/3;
ventral 1 2/5 to 1 3/5.

Brown, paler on under surface
of head and abdomen in which
region also silvery white tint. Five
whitish horizontal lines begin on head,
also all less in width than diameter

A.N.S.P., two examples. Bombay. Prof. F. Hallberg. Length 58 to 67 mm.

A.N.S.P., one example. Delagoa Bay, Portuguese East Africa. 1922. H. W. Bell Marley. Length 275 mm.

13652. Malayan Island, Gillolo Island. November 29, 1909. Length 165 mm.

23689 to 23692, 24049 and 24050. Gomamo Island, Pitt Passage. December 3, 1909. Length 73 to 97 mm. (Male with buccal ova.)

23533. Tidore Island, south of Ternate. November 25, 1909. Length 101 mm.

11161. Han Wan Bay, south Formosa. January 15, 1910. Length 176 mm.

2570

Mugil saliens Risso

Mugil saliens Risso, Ichth. Nice, p. 345, 1810 (type locality, Nice, France). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 443, 1861 (Cape of Good Hope). — Sauvage, Hist. Nat. Madagascar, Poiss., p. 396, 1891 (Madagascar). — Boulenger, Cat. Fresh Water Fish. Africa, vol. 4, p. 85, 1916 (Cape of Good Hope, Table Bay, St. James River, Chuluumna). — Barnard, Ann. South Afric. Mus., vol. 21, pt. 1, p. 307, June 1925 (Table Bay; East London).

rays 8. Caudal truncate or very slightly emarginate. Pectoral longer than ventral.

Color, Yamow. This diagnosis is framed chiefly from the type of Choristium sexsumi Jordan and Seale in the U. S. National Museum and Pory's account of the cotype Liriroploma rubre which is said to be but 80 mm. long, besides a third species we describe as new.

Analysis of the species.

a.' Warm brown generally with 7 deep brown well defined, narrow longitudinal dark bands; fins uniform. sexsumi

a.² Brown with 6 very pale longitudinal bands, converge narrowly on head toward eye; soft dorsal and anal each with large black ocellus marginally. swalesi

Mugil capensis Valenciennes, Hist. nat. Poiss., vol. 11, p. 108, 1836 (type locality, Cape of Good Hope).

— Günther, Cat. Fish. Brit. Mus., vol. 3, p. 443, 1860 (type).

Mugil richardsonii Andrew Smith, Zool. South Africa, Pisc., pl. 29, fig. 1, 1849 (type locality, Eastern and western coasts of South Africa).

— Bleeker, Nat. Tijds. Ned. Indië, vol. 21, p. 54, 1860 (reference). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 440, 1861 (type). — Kner, Reise Novara, Fische, p. 227, 1865 (Cape of Good Hope).

Mugil richardsoni Peters, Monatsb. Akad. Wiss. Berlin, 1876 (1877), p. 842 (Cape of Good Hope).

Genus Chorististium Gill

Chorististium Gill, Proc. Acad. Nat. Sci. Phila., 1862, p. 15. Type Liopropoma rubre Poey, orthotypic.

Body moderately long, compressed. Head moderate. Eye moderate, anterior. Mouth large, lower jaw protruding. Maxillary with supplemental bone. Teeth villiform, in bands in jaws, on vomer and palatines, but none on tongue. Operele with 2 or 3 flat spines. Preopercle entire or very slightly serrate. Preorbital narrow. Gill rakers moderate. Scales rather large, about 40 to 50 - 1 - 1. Soft dorsal and anal, also caudal, scaly basally. Lateral line arched anteriorly, complete. Dorsals well separated, spines 8 to 8 - and soft dorsal with 1 spine and 9 to 12 rays. Anal spines 3, or without

Inugil euronotus Andrew Smith, Zool. South Africa, Pesc., pl. 29, fig. 2, 2a, 1849 (type locality, Eastern and western coasts of South Africa); — Bleeker, Nat. Tijds. Ned. Indië, vol. 21, p. 54, 1860 (reference). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 443, 1861 (type).

Choristiatium sutumi Jordan and Veale
Choristiatium sutumi Jordan and Veale,
Bull. Bur. Fisher., vol. 25, 1905
(1906), p. 256, fig. 48. Upolu, Samoa.

Depth 3 1/2; head 2 2/3 to 2 2/3, width
2 1/8 to 2 3/4. Snout 4 4/5 to 5 1/4 in head
from snout tip; eye 4 1/5 to 4 1/4,
greater than snout, greater than
interorbital to subequal with age;
maxillary not quite reaching opposite
mid eye edge, expansion 1 3/4 in
eye, length 2 1/4 to 2 2/5 in head
from snout tip; broad bands
of fine villiform teeth in jaws,
on vomer and palatines, none on
tongue; interorbital 4 4/5 to 7 1/5,
level; preopercle ridge finely
serrate. Gill rakers 2 + 9, lanceolate,
little longer than gill filaments or
1 3/4 in eye; 4 or 5 more at rudiments

Depth 3 1/4 to 3 7/8; head 3 1/2 to 3 7/8, width 1 1/2 to 2. Snout 3 2/5 to 4 in head; eye 4 to 4 2/3, 1 1/5 in snout, 1 3/4 to 1 4/5 in interorbital, without adipose lids; maxillary exposed, not quite reaching eye; length 3 3/5 to 4 1/5 in head; mouth wide, lower jaw included, would form obtuse angle; interorbital 2 1/3 to 2 3/4 in head, broadly convex; preorbital denticulate. Gill rakers 30+50, finely lanceolate, 2/3 of gill filaments, which little more than eye.

Scales in 34 to 44 series along side of body to caudal base; 13 or 14 transversely; 25 to 37 predorsal. Few small scales at front of soft dorsal and anal basally. No axillary pectoral

scale. Scales with 8 to 10 basal radiating striae; 42 to 60 short low apical denticles; circuli fine.

D. IV—I, 8, second spine 1 4/5 to 2 1/4 in head, first branched ray 1 4/5 to 2 2/5; A. III, 9, first branched ray 1 2/3 to 2 1/8; least depth of caudal peduncle 2 1/10 to 2 1/3; pectoral 1 2/5 to 1 1/2; ventral 1 3/5 to 1 7/8; caudal equals or little longer than head, well forked.

Brown above, silvery white on sides and below. Fins brownish, paired ones more whitish.

Eastern Atlantic and South Africa. described above from Angola and Mediterranean examples, largest 203 mm. in the Academy's collection.

2575

Murgil alatus Steindachner

Murgil alatus Steindachner, Anz. Akad. Wiss. Wien, Jhr. 29, p. 133, ~~Paleocyprus~~ 1892 (type locality, Madagascar); Denks. Akad. Wiss. Wien, math.-naturw. Kl., vol. 59, pt. 1, p. 364, 1892 (Madagascar river in the environs of Antananarivo).

Andamans, East Indies and Philippines. Bleeker reports 24 examples with the largest 120 mm. long, which is much greater than any of our material.

2576

Depth 4 1/2; head 4 1/2. Snout 4 in head; eye 6 1/3, without adipose lidk; maxillary exposed; mouth width 3 in head; interorbital 2 1/3; upper lip moderately thick; hind preorbital edge rounded, weakly denticulate.

Scales 30 in lateral series to caudal base; 10 transversely, 20 predorsal forward to nostrils. Long ralar scale along first dorsal base and shorter at ventral axil. Soft vertical fins finely scaled. Scales with 10 to 14 basal radiating striae.

D. IV— I, 8, origin of spinous fin nearly median, height 8 1/2 in fish without caudal, second dorsal inserted somewhat over head length behind origin of first dorsal, spine of second dorsal 1/3 first ray; caudal 3 in rest

of fish, deeply forked with long pointed lobes, upper 1/3 times lower; D. III, 9, 1; height 5 in fish without caudal, origin slightly before second dorsal; pectoral reaches seventh lateral scale, less than 5 in fish without caudal; ventral less than 5. Above yellowish, with darker scale edges. Length 700 mm.

(Steindachner.)

Madagascar. Apparently distinguished by the elongated sickle like lobes of second dorsal, anal and caudal fins. This species is not mentioned in Pellegrin's works on the Fresh water fishes of Madagascar 1933. Although Steindachner compares it with Mugil falciformis Valenciennes it surely has more in common with the West African Mugil grandisquamis Valenciennes.

2578

Iaugil ramsayi Macleay

Iaugil ramsayi Macleay, Proc. Linn. Soc. New South Wales, vol. 8, p. 208, 1883 (type locality, Burdekin River, Queensland); vol. 9, p. 42, 1884 (reference). — Mc Culloch and Whitley, Mem. Australian Mus., vol. 8, pt. 2, p. 141, July 7, 1925 (reference). — Mc Culloch, Mem. Austral. Mus., vol. 5, pt. 1, p. 116, June 29, 1929 (reference).

in brackish water,

Károli, Termesz. Füzetek, Budapest, vol. 5, 1882, p. 150 (Canton). — Steindachner and Döderlein, Denkschr. Akad. Wiss. Wien, vol. 47, 1883, p. 234 (Kagoshima). — Meyer, Ann. Soc. Españ. Hist. Nat. Madrid, vol. 14, 1885, p. 10 (Macassar, South Celebes; Ternate). — Lyttkén, Svenska Vet. Akad. Handlingar, vol. 13, pt. 4, 1887, no. 4, p. 8 (Nagasaki). — Day, Fauna Brit. India, vol. 1, 1889, p. 462. — Kent, Great Barrier Reef, 1893, p. 369 (Queensland). — Elera, Cat. Fauna Filip., vol. 1, 1895, p. 464 (Luzon; Jambales, Pangasinan). — Ishikawa and Matsmura, Prelim. Cat. Fishes Tokyo Mus., 1897, p. 56. — Mc Culloch, Biol. Res. Endeavour, vol. 2, pt. 3, 1914, p. 102 (West Australia, Cape York, China).

Depth 4; head 6. Snout short, convex, obtusely pointed; eye moderate, without adipose lids, equals snout, 2 in interorbital; maxillary well exposed, not reaching eye; lips thin, very densely and minutely ciliated; no teeth; bony tubercles on palate; interorbital convex; preorbital finely crenulated above maxillary.

Scales 36 in lateral series; 9 or 10 transversely. Pectoral with pointed axillary scale.

D. IV — I, 8, first dorsal above posterior half of ventral; A. "III, 1", begins before soft dorsal; caudal slightly emarginate; pectoral about as long as head; ventral situated below middle

of pectoral.

Silvery all over, with bluish tint on back. Length 204 mm.

(Macleay.)

Queensland.

2581

Mugil ceramensis Bleeker

Mugil ceramensis Bleeker, Nat. Tijds. Ned. Indië, vol. 3, p. (690) 699, 1852 (type locality, Wahai, Ceram); vol. 5, p. 154, 1853 (Macassar); vol. 9, p. 392, 1855 (Gambang River, Pasuruan, Java); vol. 12, p. 274, 1856 (Tobali, Banka); Act. Soc. Sci. Ind. Neerl., vol. 1, no. 3, pp. 4, 31, 1856 (Manado); vol. 1, no. 5, p. 6, 1856 (Amboina); vol. 2, no. 7, p. 5, 1857 (Amboina); Nat. Tijds. Ned. Indië, vol. 13, p. 372, 1857 (Sangi); Act. Soc. Sci. Ind. Neerl., vol. 3, no. 9, p. 2, 1857-58 (Padang); ~~vol.~~ p. 4 (Trusan, Sumatra); Nat. Tijds. Ned. Indië, vol. 16, p. 277, 1858 (East Indies; diagnosis in key); Act. Soc. Sci. Ind. Neerl. (Borneo), vol. 8, p. 48,

and among the most valued of food fishes. About 70 genera known. We unite the Latidae, Moronidae, Oligoridae, Kuhlidae, Epinephelidae, Teraponidae and Serranopidae of Jordan, all as the present family. In such a greatly diversified group further subdivision into subfamilies will doubtless be found necessary, though at present those of the Philippine region fall as we set forth below. Many of the species are little known and many are very variable, especially with age. In a few of these cases we have attempted to illustrate a few of the more striking variations by means of the accompanying pen sketches.

1859 (Borneo). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 449, 1861 (copied). — Weber, Zool. Ergebn. Ned. Ost Ind., vol. 3, p. 451, 1894 (Borneo, Banka, Sumatra, Java, Timor, Celebes, Ceram, Amboina). — Jordan and Seale, Bull. Bur. Fisher., vol. 26, p. 11, 1906 (1907) (Cavite). — Weber, Siboga Exped., vol. 57, Fische, p. 139, 1913 (Valeyer). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 79, p. 264, 1927 (Philippines). — Weber and Beaufort, Fishes Indo-Austral. Arch., vol. 4, p. 247, 1922 (Valeyer, Ambon, Buru, Kisar, Laut; Ceylon).

Liza ceramensis Reeves, Journ. Pan Pac. Res. Inst., vol. 3, no. 2, p. 8, 1927 (reference). — Chu, Biol. Bull. St. John's Univ., no. 1, p. 105, January 1931 (reference).

as usual in carnivorous fishes. Scales adherent, moderate or small, usually, but not always ctenoid. Cheeks and opercles always scaly. Lateral line single, not extending on caudal fin. Dorsal spines mostly stiff, 2 to 15. Soft dorsal with 10 to 30 rays. Anal rather short, soft rays 7 to 12, spines, when present, always 3, sometimes absent. Caudal usually with 17 principal rays. Pectoral well developed, with narrow base, rays branched. Ventrals with spine and 5 rays, thoracic, normally developed and without distinct axillary scale.

The large family of marine fishes in all warm seas, a few living in tidal waters where brackish to even fresh. All are carnivorous

2583

? *Liza parva* Wu, Contrib. Biol. Lab. Sci. Soc. China, vol. 5, no. 4, p. 82, fig. 65, 1929 (type locality, Amoy).

free from isthmus. Gill 4, slit behind last. Gill rakers long or short, usually stiff, armed with teeth. Pseudobranchiae present, large. Branchiostegals 5 to 8. Lower pharyngeals rather narrow, with pointed teeth, separate. Skull without conical spines and usually without well developed cavernous structure. Suborbital shelf present. No suborbital stay. Vertebrae typically 24, of which 14 caudal, number sometimes increased, never over 35. All or most ribs attached on transverse processes, when latter develop. Front vertebrae without transverse processes. Air vessel present, usually small and adherent to wall of abdomen. Stomach coecal, with few or many pyloric appendages. Intestine short,

Depth 3 1/6; head 3 1/8, width 1 4/5.
Snout 3 3/4 in head; eye 3 3/4, equals snout, 1 2/5 in interorbital; without adipose lids
maxillary reaches 4/5 to eye, exposed,
length 3 1/2 in head; closed
jaws equal; interorbital 2 1/2,
slightly convex; lower preorbital edge serrate.

Scales 30 in lateral axial
series to caudal base; 10 transverse,
21 predorsal. Soft vertical fins
densely scaled. No axillary
pectoral scale.

D. IV — I, 9, I, first spine 1 3/4
in head, first ray 2 1/2; A. III, 10, I,
third spine 2 2/5, 2/3 of fin base
before soft dorsal origin; least
depth of caudal peduncle 2 1/2
in head; pectoral 1 2/5, not

Red Sea, Arabia, East Africa, Zanzibar, Mauritius, Reunion, Madagascar, India, East Indies, Philippines, Queensland, Polynesia.

2565

reaching spinous dorsal; ventral
1 1/2.

Brown above, below silvery
white. Fins pale.

Ceylon, East Indies, Philippines,
China.

on head; above lateral line dark bands follow longitudinally at scale junctures, but below lateral line extend midway over scale exposures. Young often with contrasted median blackish spot at caudal base, often size of pupil, usually with age whole base of caudal fin becoming diffuse dark brown, even extending out on upper and lower caudal edges as narrowly dusky. Iris whitish, except as crossed by dark lateral band extending from side of snout. Fins all pale except dusky brown spinous dorsal, which darker terminally. Front edges of soft dorsal and anal little darker than rest of fin. Pectoral pale, base brown and axil pale or dark. Ventrals dusky, variably paler in some examples.

2586

A. H. S. P., one example. Philippines.
Commercial Museum of Philadelphia.
Length 50 mm.

cheek to preopercle ridge; muzzle, including interorbital, suborbitals and maxillary, naked. Scales with 7 to 22 basal radiating stride; 25 to 162 apical denticles, with 5 or 6 transverse series of basal elements; ~~canal~~ circuli fine.

D. VI — I, 9, I. third spine 2 1/5 to 2 1/2 in total head length, first ray 1 4/5 to 1 7/8; A. II, 8, I. second spine 2 2/3 to 3 1/10, first ~~canal~~ ray 1 7/8 to 2; caudal 1 1/4 to 1 1/3, hind edge little emarginate; least depth of caudal peduncle 2 4/5 to 3; pectoral 1 4/5 to 1 7/8; ventral 2 to 2 1/8.

Ground color pale brown, nine longitudinal dark brown bands, slightly narrower than pale interspaces; in many specimens, especially smaller ones more or less alternately paler where often little narrower, especially so

2587

Inugil convexus de Vis

Inugil convexus de Vis, Proc. Linn. Soc. New South Wales, vol. 9, pt. 4, p. 869, March 4, 1885 (type locality, Cardwell, Queensland). — Mc Culloch and Whitley, Mem. Queensland Mus., vol. 8, pt. 2, p. 141, July 7, 1925 (reference). — Mc Culloch, Mem. Austral. Mus., vol. 5, pt. 1, p. 114, June 29, 1929 (reference).

Family Serranidae.

Body oblong, more or less compressed, dorsal and ventral profiles usually not exactly alike. Caudal peduncle of moderate depth. Mouth moderate to large, not very oblique. Premaxillaries protractile and wide maxillary usually not slipping its whole length into sheath formed by preorbital, which mostly narrow. Each premaxillary branch with hind expansion internal to maxillary. Supplemental maxillary present or absent. Teeth conic or pointed, in bands in jaws and usually present in bands on vomer and palatines. Nostrils double each side. Preopercle edge usually more or less serrate, rarely entire. Opercles usually with one or two terminal flat spines. Gill membranes separate,

depth 4; head 5, narrow. Snout rather pointed, 4 in head; orbit 4 1/2, without adipose lids; maxillary exposed throughout its length; jaws with fine, close set teeth; free space on chin broadly lanceolate; interorbital 2 1/2 in head; preorbital strongly serrated behind and in front.

Scales 34 in lateral series; 11 or 12 transversely; 27 predorsal forward to interorbital, rest of head naked.

D. IV — I, 8, first dorsal over tip of ventral, second considerably behind anal; A. III, 10; greatest caudal peduncle depth equals its length; pectoral 1 1/4 in head, rises rather below opercular angle; ventral rises below last third of pectoral.

2589

Entirely silvery, opercle golden.
No markings. Length 204 mm.
(de Vis.)

Queensland.

2590

Mugil argenteus Quoy and Gaimard

Mugil argenteus Quoy and Gaimard, Voy. Uranie, Zool., p. 238, pl. 59, fig. 3 (poor), 1824 (type locality, Port Jackson, Australia). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 424, 1861 (South Australia). — Schmeltz, Cat. Mus. Godeffroy, no. 3, p. 10, 1866 (South Seas); no. 4, p. 21, 1869 (Samoa). — Fitzroy River near Rockhampton

Günther, Journ. Mus. Godeffroy, vol. 6, pt. 11, p. 214, 1877 (Samoa). — Fitzroy River near Rockhampton

— Macleay, Proc. Linn. Soc. New South Wales, vol. 2, p. 417, 1879 (1880) (copied); ~~Fitzroy River near Rockhampton~~; vol. 4, p. 417, 1880 (copied); vol. 5, pt. 2, p. 47, 1881 (reference). — Tosh, Parl. Rep. Mar. Dep. Queensland, p. —, 1902-3 (1903) (Moreton Bay). — Jordan and Veale,

depth 2 1/8 to 2 1/5; head 2 2/5 to 2 3/5
width 2 1/5 to 2 1/4. Snout 4 1/8 to 4 4/5
in head from snout tip; eye 2 4/5 to
3, greater than snout & interorbital;
maxillary reaches front eye edge
or but slightly beyond, expansion
3 3/4 to 5 in eye, length 2 1/4 to 2 2/5
in head from snout tip; teeth
villiform, small, in narrow bands
in jaws, on vomer and palatines and
narrow median row or band on
tongue; interorbital 3 1/2 to 4 1/2, very
slightly convex; angle posterior
supraorbital spine, none below;
preorbital edge with 6 or 7 spines,
ridge with few weaker serrae;
lower edge and ridge of preopercle
serrate, upper ridge and edge
entire, also slightly enlarged spine
at angle of ridge. Gill rakers

Bull. Bur. Fisher., vol. 25, p. 217, 1905 (1906) (reference). — Fowler, Mem. Bishop Mus., vol. 10, p. 121, 1928 (compiled); ~~vol. 11, no. 5, p. 324, 1931 (reference)~~. ~~— Mc Culloch, Rec. Austral. Mus., vol. 5, pt. 1, p.~~ vol. 11, no. 5, p. 324, 1931 (reference).

Mugil (Liza) argenteus Mc Culloch, Rec. Austral. Mus., vol. 13, no. 4, p. 131, April 12, 1921 (discussion). — Mc Culloch and Whitley, Mem. Queensland Mus., vol. 8, pt. 2, p. 141, July 7, 1925 (reference).

(Kawa, Ceram).

Ambassis interruptus Elera, Pat. Fauna Filip., 1895, p. 467 (Luzon, Manila, Rio Pasig).

Priopis interruptus Jordan and Veale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 18 (Cavite).

Priopis interrupta Jordan and Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 255 (Mindoro and Cayo).

Ambassis macracanthus (non Bleeker) Day, Proc. Zool. Soc. London, 1870, p. 681 (Andamans and estuaries).

Ambassis interrupta var. reticulatus Weber, Nova Guinea, vol. 9, pt. 4, 1913, p. 574 Meranke, Bival Island, Labang, Alkmaar, Roverkamp, Verlaten Bocht.

2592

Liza argentea McCulloch, Mem. Austral. Mus., vol. 5, pt. 1, p. 116, June 29, 1929 (reference).

1/m Jordan and Snyder, Annot. Zool. Japon., vol. 3, 1901, p. 80 (Yokohama and Kamakura); Proc. U. S. Nat. Mus., vol. 23, 1901, p. 752 (Yokohama, Tondo, Kinshiu). — Snyder, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 510 (Okinawa, Riu Kiu).

Xyrauchen (Chrysophrys) schlegelii Steindachner, Ann. Hofmus. Wien, vol. II, 1896, p. 200 (Japan).

Chrysophrys basta (not Schneider) Günther, Cat. Fishes Brit. Mus., vol. 1, 1857, p. 490 (part; China; types of Chrysophrys xanthopoda and Chrysophrys auripes; Japan; North West Australia?). 1/m

Steindachner and Döderlein, Denkschr. Akad. Wiss. Wien, math.-naturw. Classe, vol. 48, pt. 1, 1885, p. 17 (Japan). — 1/m

Franz, Abhandl. Kon. Bayer. Akad. Wiss., math.-physik. Klasse, vol. 4, Suppl. Band 1, 1910, p. 47 (Yokohama; Aburatsubo).

Mugil ferrandi Valenciennes, Hist. Nat. Poiss., vol. 11, p. 142, 1836 (name on Mugil argenteus).

? Mugil ampinensis Ethmia, Ann. Carnegie Mus., vol. 13, nos. 3-4, p. 245, pl. 11, fig. 1, April 25, 1922 (type locality, Ampin; Kwaren River at Kada, Kwarenko).

Cuvier, Règne Animal, ed. 2, vol. 2, p. 232, April 1929 (on Duoy and Gaimard. MS.; nomen nudum).—

6 examples. Pulauan River, Mindoro Island. December 11, 1908. Length 35 to 55 mm.

11322. San Roque, Leyte Island. July 29, 1909. Length 11 mm.

21387 and 21388. Sebatic Island. January 2, 1909. Length 67 to 80 mm.

4 examples. Gum River, Tayabas, Marinduque Island. February 25, 1909. Length 120 to 140 mm.

1 example. Kudat, [illegible], Borneo. March 2, 1908. Length 40 mm.

Mugil
~~Lupa~~ peronii Valenciennes, Hist.
Nat. Poiss., vol. 11, ~~1836~~ p. 138, July 1836
(type locality, North West Australia).
— Günther, Cat. Fish. Brit. Mus.,
vol. 3, p. 452, 1861 (copied). —
Castelnau, Proc. Zool. Acclimat.
Soc. Victoria, vol. 3, p. 151, 1873
(Western Port); Proc. Linn. Soc.
New South Wales, vol. 3, p. (353)
387, 1879 (Port Jackson). — Macleay,
(Proc. Linn. Soc. New South Wales,
vol. 4, p. 421, 1880 (Western Port;
Port Jackson); vol. 5, pt. 2, p. 47,
1881 (reference) — Jenison-Woods, Fish Fisher - New South Wales, p. 70 (1883 reference).
— Fowler, Mem.
— Stead, Edible Fish. New South Wales, p. 42, pl. 13,
1908. — Roughley, Fisher of Australia, p. 41, pl. 8,
1916. — Mc Culloch, Fish New South Wales, ed. 2,
p. 39, pl. 14, fig. 139 f., 1927.

.7,

p. 301, 1817 (Vanga Pranch).

Isurgil
~~Lupa~~ peronii Valenciennes; Hist.
Nat. Poiss., vol. 11, ~~xxxx~~ p. 138, July 1836
(type locality, North West Australia).
— Günther, Cat. Fish. Brit. Mus.,
vol. 3, p. 452, 1861 (copied). —
Castelnau, Proc. Zool. Acclimat.
Soc. Victoria, vol. 3, p. 151, 1873
(Western Port); Proc. Linn. Soc.
New South Wales, vol. 3, p. (353)
387, 1879 (Port Jackson). — Macleay,
Proc. Linn. Soc. New South Wales,
vol. 4, p. 421, 1880 (Western Port;
Port Jackson); vol. 5, pt. 2, p. 47,
1881 (reference) — Fowler, Mem.
Bishop Mus., vol. 11, no. 5, p. 324,
1931 (reference).

— Jenison-Woods, Fish Fisher. New South Wales, p. 40, 1883 (reference).

— Schmeltz, Cat. Mus. Godeffroy, no. 7,
p. 51, 1879 (Tonga Islands).

Schmidt, Trans. Pac. Comm. Acad. Sci.
R., vol. 1, 1830, p. 50 (Kominato, Rui Kui).

Ambassis interrupta Bleeker

Ambassis interrupta Bleeker, Nat. Tijds. Ned. Indië, vol. 3, 1852, p. 696. Wahai, Ceram and Batavia, Java. — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 226 (copied). — Peters, Monatsb. Akad. Wiss. Berlin, 1868, p. 255 (Quingo River at Calumpit, Luzon; Calbigan River, Samar). ~~Pulo Brani, Singapore~~. — Day, Fishes of India, pt. 1, 1875, p. 53, pl. 15, fig. 5 (Andamans). — Bleeker, Atlas Ichth. Ind. Néerl., vol. 8, 1876-77, p. 137, pl. (70) 348, fig. 5 (Singapore, Java, Borneo, Celebes, Batjan, Buru, Ceram, Amboina, Luzon, Samar). — Martens, Preuss. Exped. Ost-Asien, vol. 1, 1876, p. 386 (Singapore). — Meyer, Annales Soc. Españ. Hist. Nat. Madrid, vol. 14, 1885, p. 12 (Manado, Celebes). — Gorgoza, Annales Soc. Españ. Hist. Nat. Madrid, vol. 17, 1888, p. 283 (Rio Pasig). — Day, Fauna Brit. India, vol. 1, 1889, p. 487. — Weber, Siboga Exped., vol. 65, 1913, p. 217

57, Fische,

2595

Inugil peroni Ogilby, Edible Fish. New South Wales, p. 126, pl. 32, 1893.

Card 29

Dentex mufar Valenciennes
(Ehrenberg),

Dentex mufar, Valenciennes, Hist. nat. Poiss., vol. 6, 1830, p. 240. Egypt, Red Sea. 1/2m Rüppell, Neue Wirbelth., Fische, 1835, p. 115 (Suez). 1/2m Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 371 (compiled). 1/2m Hartens, Preuss. Exped. Ost Asien, 1876, p. 387 (Nagasaki [?]). 1/2m Klunzinger, Fische Roth. Meer., 1884, p. 35, pl. 4, fig. 2. 1/2m Steindachner, Denkschr. Akad. Wiss. Wien, Math.-naturwiss. Classe, vol. 71, pt. 1, 1901, p. 133: Gischin, South Arabia). 1/2m Zugmayer, Abhandl. Kon. Bayer. Akad. Wiss., vol. 28, band 6, 1913, p. 10 (Oman).

Polysteganus mufar Klunzinger, Verhandel. zool. botan. Gesell. Wien, vol. 20, 1870, p. 764 (type of Dentex variabilis Ehrenberg).

Polysteganus mupfar Klunzinger, Hist. nat., vol. 20, 1870, p. 764 (variant spelling).

Verhandel. zool. botan. Gesell. Wien,

Depth 3 1/5; head 3 1/2. Snout 4 3/5 in head; eye 4 3/5, subequal with snout, 1 2/3 to 2 in interorbital, adipose lids little developed; maxillary not quite reaching eye; lips thin; jaws fringed with minute cilia; interorbital convex, moderately high; preorbital denticulate.

Scales 35 to 38 in lateral series to caudal base; 14 transversely, 15 to 17 predorsal forward to occiput, 6 interdorsal. No enlarged axillary pectoral scale.

D. IV — I, 8, first spine 2 1/5 in head, first ray 2 1/5; A. III, 10, first ray 2 1/4; least depth of caudal peduncle 2 1/4; pectoral 1 2/5, rays 16; ventral rays I, 5, fin 1 3/5 in head; caudal emarginate, 2 7/8 in rest of fish.

Steel blue above, silvery on sides, white below. Scales on backs with narrow median longitudinal streaks forming bands, often with golden reflections. Soft dorsal, anal and caudal tinged with gold on outer margin. Small black axillary pectoral spot, preceded by golden blotch. Length 408 mm. (Ogilby.)

North western Australia, Queensland, New South Wales, Victoria, South Australia, Polynesia.

2598

Mugil australis Steindachner

Mugil australis Steindachner, Denks. Akad. Wiss. Wien, vol. 41, pt. 1, p. 6, 1879 (type locality, Australia, [=likely Port Jackson]). — Mc Culloch, Fish New South Wales, ed. 2, p. 39, 1927 (reference); Rec. Austral. Mus., vol. 5, pt. 1, p. 115, June 29, 1929 (reference).

rakers on lower branch of first arch; scales 50 or 51 + 5 in lateral line; anal rays 10 or 11. taeniura

depth $4\frac{3}{5}$; head $4\frac{3}{5}$. Snout longer than eye; eye $4\frac{3}{5}$ in head, without adipose lids; upper lip thin, small; mouth cleft twice wide as long; interorbital 3 in head, very slightly convex; preorbital edge denticulate.

Scales 39 or 40 in lateral series to caudal base; 15 transversely. Long alar scale at base of first dorsal, one half as long at pectoral axil and over ventral base.

D. $\underline{\underline{III}}$ — $\underline{\underline{I}}$, 8, first dorsal spine $1\frac{2}{3}$ in head length, second dorsal base $1\frac{1}{2}$ in anal fin; A. $\underline{\underline{III}}$, 10, first ray nearly $1\frac{2}{3}$ in head; caudal deeply emarginate; pectoral trifle longer than first dorsal spine; rays 15; inner ventral ray adnate to body by

membrane.

Back greenish gray, below - golden yellow. Length 210 mm. (Steindachner.)

Inregil hamiltonii Day

Inregil hamiltonii Day, Proc. Zool. Soc. London, 1869, p. 614 (type locality, Pegu and other rivers in Burmah, Irrawaddi River,); Fishes of India, pt. 2, p. 354, pl. 75, fig. 5, 1876; Fauna British India, Fishes, vol. 2, p. 49, 1889. — Vinciguerra, Ann. Mus. Civ. Stor. Nat. Genova, ser. 2, vol. 2, p. 89, ( ); ser. 2, vol. 9, p. 182, 1889-90 (Rangoon).

Dules marginatus Cuvier.

Dules marginatus Cuvier, Hist. Nat. Poiss., vol. 3, 1829, p. 116, pl. 52. Java. — Valenciennes, Hist. Nat. Poiss., vol. 7, 1831, p. 474 (Vanicolo). — Hombron and Jacquinot, Voyage Astrolabe e Zelée, Zool., vol. 3, 1853, p. 41, pl. 3, fig. 3 (Java ———). — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 268 (Java, Amboina, Fiji); Journ. Mus. Godeffroy, vol. 1, pt. 1, 1873, p. 24 (Sumatra, Java, Amboina, Fiji, Society Islands, Bonham Islands, Gilbert Islands, Hawaii, Polynesia). — Day, Fishes of India, pt. 1, 1875, p. 67, ~~pl. 18, fig. 1~~ (Canara). — Günther, Trans. Roy. Soc. London, vol. 168, 1879, pp. 470, 471 (Rodriguez). — Károli, Termesz. Füzetek, Budapest, vol. 5, 1882, p. 153 (Palaboen, Java). — Day, Fauna Brit. India, vol. 1, 1889, p. 503 (part). — Weber, Zool. Ergebn. Reise Niederl. Ost

Depth 3 7/8; head 3 7/8, width 1 1/2?
Snout 4 1/4 in head; eye 4 1/4,
subequal with snout, 1 1/3 in
interorbital, without adipose lids;
lips rather thin, upper forms
maxillary little exposed;
snout end; mouth cleft half its
width, mandibular angle somewhat
obtuse; teeth not visible;
interorbital 3 in head, slightly
convex; preorbital without notch, strongly
denticulated.

Scales 44 in lateral line to
caudal base; 18 transversely, 34
predorsal. Caudal base scaly,
few on soft dorsal and anall.
No enlarged scale in pectoral
axil. Scales strongly ctenoid,
each with elevated keel.

D. IV — I, 8, first spine 1 2/3 in
head, first branched ray 1 3/4;
A. III, 9, first branched ray 1 7/8;
caudal 1, emarginate behind; least
depth of caudal peduncle 2;

pectoral 1 3/4, rays 13; ventral rays I, 5, fin 1 3/5 in head.
≡ Silvery, shot with gold, leaden color on upper half of body. Length 114 mm. (Day.

Rivers of Burmah.

2604

Mugil auratus Risso

Mugil auratus Risso, Ichth. Nice, p. 344, 1810 (type locality, Nice, France). — Boulenger, Cat. Fresh Water Fish. Africa, vol. 4, p. 87, fig. 50, 1916 (East London; most materials listed Atlantic). — Gilchrist and Thompson, Ann. Durban Mus., vol. 1, no. 4, p. 312, 1917 (reference).

Mugil breviceps Valenciennes, Hist. Nat. Poiss., vol. 11, p. 98, 1836 (type locality, Goree, West Africa).

lobes of caudal often dusted little darker. Fins otherwise all more or less pale to whitish. Iris silvery white. Preserved examples show head and lower side of body frequently with bright silvery white tints.

Red Sea, Arabia, Zanzibar, Mozambique, Natal, Madagascar, Mauritius, Reunion, Bourbon, India, Andamans, East Indies, Philippines, Queensland, Polynesia. Day's figure of Ambassis commersonii differs in that the cheeks is shown with ~~though the description says~~ 3 rows of scales and the preorbital ridge entire. Bleeker's figure of Ambassis commersonii also does not show the preorbital ridge serrated though with the hind preopercle ridge so. Also the spinous dorsal has the entire upper terminal portion

2605

Mugil breviceps Valenciennes

Mugil breviceps Valenciennes, Hist. Nat. Poiss., vol. 11, p. 78, 1836 (type locality, Gorea). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 410, 1861 (reference). — Steindachner, Sitzb. Ber. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 53, pt. 1, 1866. p. 459, pl. 1, fig. 1, 1866 (Port Jackson). — Macleay, Proc. Linn. Soc. New South Wales, vol. 4, p. 424, 1880 (reference).

and rounded caudal, has doubtfully been placed in this family.

Genus Dules Cuvier

Dules Cuvier, Règne Animal, ed. 2, vol. 2, 1829, p. 117. Type Centropomus rupestris Lacépède, designated by Fowler, Proc. Acad. Nat. Sci. Phila., 1906, p. 510.

→ Kuhlia Gill, Proc. Acad. Nat. Sci. Phila., 1861, p. 48. Type Perca cihata Cuvier, orthotypic.

Inoronopsis Gill, Proc. Acad. Nat. Sci. Phila., 1862, p. 236. Type Dules taeniurus Cuvier, orthotypic.

Paradules Bleeker, Ned. Tijds. Dierk., vol. 1, 1863, p. 257. Type Dules marginatus Cuvier, monotypic,

Inoronophis (Gill) Day, Fishes of India, pt. 1, 1875, p. 67. Type Dules taeniurus Cuvier. (Lapsus for Inoronopsis.)

Platysome Liénard, Proc. Zool. Soc. London, pt. 2, 1832, p. 102. Type Holocentrus cavdovittatus Lacépède, monotypic.

? Murgil curvidens Valenciennes, Hist. Nat. Poiss., vol. 11, p. 149, (upper figure), pl. 313, 1836 (type locality, Ascension Island, Atlantic Ocean; Bahia).

Mugil curvidens Günther, Cat. Fish. Brit. Mus., vol. 3, p. 467, 1861 (copied). — Steindachner, Denkschr. Akad. Wiss. Wien, math.-naturw. Kl., vol. 44, pt. 1, p. 42, 1882 (Rufisque

of each scale.

6231 and 6232. Medio Island, Galera Bay, Mindoro. June 9, 1908. Length 285 to 288 mm. Bronze or crimson preorbital bar. Orange postocular shade. Fins more or less crimson.

22604. Observatorio Island. December 19, 1908. Length 55 mm.

5872, 7945, 9614, 14290 [1149], 17968, 22080, 22081. Lingayen Bay, Luzon. February 20, 1907. Length 122 to 250 mm. [1149.] Back dark smoky olive, forming 7 indistinct bars over upper side and upper part of caudal peduncle. Mouth angle scarlet. Postocular portion of

Mugil maderensis Lowe, Proc. Zool. Soc. London, 1839, p. 82 (type locality, Madeira).

Mugil octoradiatus Günther, Ann. Mag. Nat. Hist., ser. 3, vol. 7, p. 347, fig., 1861 (type locality, England).

Mugil natalensis Castelnau, Mém. Poiss. Afr. Australe, p. 50, 1861 (type locality, Natal).

— Gilchrist and Thompson, Ann. South. African Mus., vol. 11, pt. 2, p. 43, 1911 (Natal).

September 7,

Mugil dumerili Steindachner, Sitzg. Ber. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 60, p. 959, 1870 (type locality, Senegal).

combined head and body to caudal base, deeply forked and lobes slenderly pointed; least depth of caudal peduncle 2 4/5 to 3 in total head length; pectoral 1 1/5 to 1 1/4; ventral 1 3/5 to 1 1/2.

Pale brown with silvery reflections. Scales on backs, especially above lateral line each dusted with brown dots marginally. Silvery white band from eye to caudal fin and in formaline forms a narrow, median, axil dusky or neutral gray line, most distinct on tail. Muzzle more or less dusted with brownish. Membrane between second and third erect dorsal spines dusky to blackish. All vertical fins with minute dusky dots, chiefly on fin rays. Upper and lower

Depth 4 3/5 to 4 3/4; head 3 1/4 to 3 1/2, width 1 2/3 to 1 3/4. Snout 3 1/2 to 4 1/6 in head; eye 4 1/6 to 5 2/5, 1 to 1 2/5 in snout, 1 1/4 to 2 in interorbital, without adipose lids; maxillary not quite reaching eye, 4 1/6 to 4 1/3 in head; mouth broad, lower jaw included, would form obtuse angle; upper lip moderate, width 3 1/4 to 4 in eye; interorbital 3 in head, evenly convex; preorbital edge denticulate. Gill rakers 30+45, finely lanceolate, 2 1/6 in gill filaments, which 4 1/5 in head.

Scales 42 to 46 in median lateral series to caudal base; 13 or 14 transversely, 34 to 40 predorsal. Soft dorsal and anal covered with small scales basally, also largely over caudal. Pectoral

without axillary scale, or only rudiment. Scales with 9 to 15 basal radiating striae; 62 to 65 rows of short, low apical points; circuli fine.

D. IV — I, I, 7, I or I, 8, I, first spine 1 2/3 to 1 7/8 in head, first branched ray 2 to 2 1/4; A. III, 9, I, rarely 8, I, first branched ray 2 to 2 1/8; caudal equals head or slightly longer, deeply forked; least depth of caudal peduncle 1 1/3 to 2 3/4 in head; pectoral 1 1/4 to 1 3/4; ventral 1 3/5 to 1 4/5.

Brown above, sides and below whitish. Each row of scales with slightly darker longitudinal streaks on backs and upper sides. In life several yellowish spots between eye and gill opening. Paired fins whitish, others brownish.

2610

Eastern Atlantic, South Africa.

Depth 3 to 4; head 2 1/3 to 2 1/2, width 2 1/8 to 2 1/2. Snout 4 to 4 1/5 in head from snout tip; eye 2 4/5 to 3 1/3, greater than snout or interorbital; maxillary reaches opposite 3/5 to 2/3 in eye, expansion 2 to 2 1/8 in eye, length 1 1/2 to 2 in head; bands of villiform teeth in jaws, on vomer and palatines, 2 moderate or small canines above anteriorly each side, and 3 or 4 small lower lateral canines; interorbital 4 1/5 to 6, nearly level; preopercle ridge entire, ~~back~~ edge finely serrate. Gill rakers 4+9, also 5 or 6 rudiments above and below and equal gill filaments which 2 3/4 in eye.

Scales 23 in lateral line to caudal base and 3 or 4 more on latter, 2 or 3 above, 6 below, 5 predorsal, 2 rows of scales on cheek to preopercle ridge;

2611

Inugil joloensis Veale

Inugil joloensis Veale, Philippine Journ. Sci.; vol. 4, No. 6, p. 500, pl. 4, November 1909 (type locality, Jolo, Jolo Island, Philippines).

Card 179

Pagrosomus auratus (Schneider)

Labrus auratus Schneider, Syst. Ichth. Bloch, 1801, p. 266. New Zealand.

Sciaena aurata (Forster) Lichtenstein, Descript. Animal. Forster, 1844, p. 307 (Queen Charlotte Sound, New Zealand).

Pagrosomus auratus Gill, Mem. Nat. Acad. Sci., vol. 6, 1893, p. 97 (refernces).

1/m Stead, Fishes of Australia, 1906, p. 125, figs. 45-46 (New South Wales, Victoria, Queensland, South and West Australia). 1/m

Waite, Records Canterbury Mus., vol. 1, no. 3, June 24, 1911, p. 272 (mouth of Clutha River 15 to 50 fathoms; off Wellington Harbor 11 to 105 fathoms; Bay of Plenty). 1/m Jordan and Thompson, Proc. U. S. Nat. Mus., vol. 41, 1912, p. 578 (Caloundra Banks, Australia; Wanganui, New Zealand). 1/m Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1923, p. 44 (Melbourne).

depth 2 7/8 to 3 1/4; head 3 2/5 to 3 2/3, width 1 2/5 to 1 1/2. Snout 3 7/8 to 4 in head; eye 2 7/8 to 3, greater than snout, 1 1/3 to 1 2/5 in interorbital; preorbital with deep and conspicuous notch level with upper part of pupil, lower edge pectinated; mouth width — 2 3/5 to 3 in head, as seen below forms shallow arc; in profile lower jaw little shorter; upper lip rather broad, vertical, width 1/2 of eye; interorbital 2 to 2 1/8 in head, low, broadly convex. Gill rakers 14 + 30, very fine and slender, 1 1/3 in gill filaments, which 1 1/2 in eye.

Scales 32 or 33 in median lateral series to caudal base; 10 transversely, 18 predorsal of which 12 or 13 forward opposite hind eye edge. All fins, except spinous dorsal, scaly basally. Scales with no axillary pectoral scale.

7 basal radiating striae, circuli very fine, obsolete apically.

D. IV — I, 7, I, first spine 1 1/2 to 1 3/5 in head, second branched ray 1 1/2 to 1 3/5; A. III, 9, I, third spine 2 to 2 1/10, second ray 1 1/4 to 1 2/5; least depth of caudal peduncle 2; pectoral 1, rays I, 15; ventral I, 5, fin 1 2/5 in head; caudal 2 7/8 in 3 1/8 in rest of fish, deeply emarginate.

Back olive, sides and below silvery white. Iris bright silvery white. Vertical fin all more or less grayish. Pectoral with small conspicuous dark brown spot at origin of fin. Ventral whitish.

Philippines. Although Seale mentions Mugil labiosus in comparison, apparently the outstanding distinction for his

species is the deeply notched preorbital.

Sixteen examples. Port Caltom, Busuanga Island. December 15, 1908. Length 47 to 69 mm.

2615

Genus Rhinomugil Gill

Rhinomugil Gill, Proc. Acad. Nat. Sci. Philadelphia, 1863, p. 169. (Type Mugil corsula Buchanan-Hamilton, orthotypic.)

Body elongated, compressed. Head depressed, wide, upper profile nearly horizontal. Snout very short. Eye small, without adipose lids, advanced near first fifth in head and impinging on upper profile. Mouth inferiorly terminal, angular, lower jaw much shorter and well included. Upper lip thick. Teeth in single row, fine, above and below. Maxillary exposed. Interorbital flat. Preorbital without notch, lower edge serrated. Pyloric

Cocca 2. Scales rather small, in even longitudinal rows, finely ctenoid, with slightly raised line along center of each. Pectoral axil without elongated scale. Dorsals small, well separated, soft dorsal behind anal. Caudal large, slightly emarginate behind. Pectoral large, rays 15. Ventral with pointed axillary scale, with spine and 5 rays.

One species in the rivers and estuaries of Bengal and Burma. "These fish swim with their eyes just above the surface of the water, giving the appearance of a number of tadpoles. Immediately they are disturbed they dive down with great rapidity."

Rhinomugil
~~Chaenomugil~~ corsula (Buchanan-Hamilton)

Mugil corsula Buchanan-Hamilton, Fishes of Ganges, pp. 221, 381, pl. 9, fig. 97, 1822 (type locality, most rivers in Gangetic provinces, introduced in ponds of Southern Bengal). — Valenciennes, Hist. Nat. Poiss., vol. 11, p. 119, 1836 (mouths of the Ganges). — Eydoux and Souleyet, Voy. Bonite, Zool., vol. 1, p. 172, pl. 4, fig. 2 1841 (Ganges River). — Bleeker, ~~Nat~~. Verh. Batavia. Genoot. (Nat. Sch. Bengal), vol. 25, p. (48) 101, 1853 (Hooghly River, Calcutta). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 460, 1861 (Calcutta). — Day, Fishes of India, pt. 2, p. 354, pl. 71, fig. 6, 1876 (Bengal and Burma Rivers); Fauna British India, Fishes, vol. 2, p. 49, 1889. — Vinciguerra, Ann. Mus. Civ. Stor. Nat. Genova, ser. 2, vol. 9, p. 181, 1889-90 (Rangoon; Mandalay; Bhamo).

Depth 2 $\frac{2}{5}$ to 2 $\frac{1}{2}$; head 2 $\frac{2}{5}$ to 2 $\frac{3}{4}$, width 2 $\frac{1}{3}$ to 2 $\frac{3}{4}$. Snout 4 $\frac{3}{4}$ to 5 in head measured from snout tip; eye 3 $\frac{1}{4}$ to 3 $\frac{1}{3}$, greater than snout or interorbital; maxillary reaches $\frac{1}{4}$ in eye in young, to front eye edge with age, expansion 4 to 4 $\frac{1}{2}$ in eye, length 2 $\frac{1}{2}$ to 2 $\frac{3}{4}$ in head from snout tip; teeth minute, villiform, in narrow bands in jaws, on vomer, palatines and median ridge of tongue; interorbital 4 to 4 $\frac{1}{4}$, slightly convex; lower preorbital ~~edge~~ with 7 or 8 serrae, gradually longer below and preorbital ridge with row of smaller ones; a single posterosupraocular spine; lower ridge and edge of preopercle serrate, with serrae larger on edge and enlarged, flat, triangular spine at angle. Gill

26/8

Rhinomugil corsula Gill, Proc. Acad. Nat. Sci. Philadelphia, 1863, p. 169 (reference). — Myers, Amer. Mus. Novit., No. 150, p. 4, November 13, 1924 (Monywa, Upper Burma).

No. 5, March 31, 1927, p. 151 (Jaffna).

Coius datnia Buchanan-Hamilton, Fishes of Ganges, 1822, pp. 88, 369, pl. 9, fig. 27. All mouths of the Ganges.

Chrysophrys datnia Day, Fishes of India, pt. 1, 1875, p. 140, pl. 34, fig. 1 (Hooghly River at Calcutta); Fauna British India, Fishes, vol. 2, 1889, p. 44, fig. 17. 1/m Ogilby, Handbook of Sydney, 1898, p. 147. 1/m Lloyd, Records Indian Mus., vol. 1, 1907, p. 226 (Ukyab). 1/m Jugmayer, Abhandl. Kön. Bayer. Akad. Wiss., math.-physik. Klasse, vol. 26, pt. 6, 1913, p. 11 (Mekran). 1/m Tirant, Verwic Oceanogr. Pich. Indo-China, 1927, note 6, p. 168 (Cochin China).

Pagrus datnia Bleeker, Verhandlingen Kon. Akad. Wetensch. Amsterdam, series 2, vol. 11, 1876, p. 5, pl. 2 (Nagasaki; Calcutta); Atlas Ichth. Ind. Neerland., vol. 8, 1878, p. 109, pl. (77) 361, fig. 7 (Java?; Manila).

depth 5; head 4, width 1 1/3.
Snout 6 1/2 in head; eye 8, 1 1/5
in snout, 1 to 1 1/2 in interorbital,
maxillary reaches 1/2 in eye,
length in profile 4 in head.

Scales 48 to 52 in lateral
series; 15 transversely, 28
predorsal. Few scales on
second dorsal, anal and caudal
fins.

D. IV — I, 7 or I, 8, second
spine 2 2/3 in head, first ray
1 4/5; A. III, 9, second ray 1 3/5,
caudal 1, broad; least depth
of caudal peduncle 2 1/4; pectoral
1 1/6; ventral 1 3/4.

Dull brown above, lighter on abdomen.
Eye - golden. Dorsal and caudal gray.
Length 457 mm. (day.)

Bengal, Burma.

Richardson, Ichth. China Japan, 1846, p. 240 (Sea of Japan: "one of Burger's specimens in the British Museum").

Sparus longispinis Jordan and Richardson, Mem. Carnegie Mus., vol. 4, no. 4, 1909, p. 189 (Takao, Formosa).

Chrysophrys auripes Richardson, Ichth. China Japan, 1846, p. 241. Chinese Seas; Canton.

Chrysophrys xanthodon Richardson, Ichth. Jr. China Japan, 1846, p. 241. China Seas; Canton.

Chrysophrys schlegeli Bleeker, Natuurk. Tijdschr. Nederl. Indië, vol. 6, 1854, p. 400. Nagasaki, Verhandel. Batavia. Genootsch. (Jap.), vol. 26, 1857, pp. 20, 86 (Nagasaki); Nederland. Tijdschr. Dierk., vol. 2, 1865, p. 56 (Limoy).

Sparus schlegeli Bleeker, Verslagen Akad. Wetensch. Amsterdam, series 2, vol. 11, 1876, p. 2, pl. 1 (Nagasaki). —

7620

Genus Chelon Röse

Chelon Röse, Artedi Angerm. Syn. Ham. Pisc., ed. 2, p. 118, 1793. Atypic.
(Type Mugil chelo Cuvier, affixed by Jordan and Evermann, Genera of Fishes, pt. 1, p. 52, 1917.)

Dodalechilus Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1903, p. 261.
(Type Mugil labeo Cuvier, orthotypic.)

Analysis of Species

a.¹ Scales 35 or 36 in lateral series.
labiosum.

a.² Scales 38 to 40 in lateral series.
crenilabis.

a.³ Scales 40 or 41 in lateral series.
heterochilus.

Chelon

~~Mugil~~ labiosus (Valenciennes)

2622

Mugil labiosus Valenciennes, Hist. Nat. Poiss., vol. 11, p. 125, 1836 (type locality, Red Sea). — Bleeker, Nat. Tijds. Ned. Indië, vol. 6, p. (204) 213, 1854 (Timor Kupang); Act. Soc. Sci. Ind. Néerl., vol. 3, No. 9, p. 4, 1857-58 (Timor); Nat. Tijds. Ned. Indië, vol. 16, p. 278, 1858 (East Indies; diagnosis in key); Act. Soc. Sci. Ind. Néerl., vol. 8 (Sumatra), p. 12, 1859 (Benculen); vol. 8 (Sumatra?), p. 6, 1860 (Timor, Benculen, Timor-Kupang); Nat. Tijds. Ned. Indië, vol. 22, p. 249, 1860 (Timor). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 454, 1861 (copied). — Klunzinger, Verh. zool. bot. Gesell. Wien, vol. 20, p. 830, 1870 (Red Sea). — Day,

Kuhlia marginata Boulenger, Cat. Fishes Brit. Mus., vol. 1, 1895, p. 38 (Java, Manado, Amboyna, Ambol, Solomons, Bonham Island, Savaii, Fiji, Viti Levu, Tahiti). — Steindachner, Abhandl. Senckenberg. naturf. Gesell., vol. 25, 1900, p. 413 (Ternate, Halmaheira, Rivers Patani and Alba). — Jordan and Evermann, Proc. U. S. Nat. Mus., vol. 25, 1903, p. 340 (Kotosho, Formosa). — Ishikawa, Proc. Dep. Nat. Hist. Tokyo, Imp. Univ., vol. 1, 1904, p. 9, pl. 3, fig. 1 (Wakanoura and Tojimagawa, Idzu). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 255 (Various rivers, Apia). — Fowler, Proc. Acad. Nat. Sci. Phila., 1907, p. 264 (name only). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 254 (Rio Baco, Mindoro). — Jordan and Thompson, Proc. U. S. Nat. Mus., vol. 41, 1912,

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Fishes of India, pt. 2, p. 357, 1876 (Andamans; India). — Klunzinger, Fische Roth. Meer., p. 133, pl. 10, figs. 4-a, 1884. — Day, Fauna British India, Fishes, vol. 2, p. 352, 1889. — Weber, Zool. Ergebn. Ned. Ost Ind., vol. 3, p. 451, 1894 (Sumatra, Timor, Amboina); Siboga Exped., vol. 57, Fische, p. 140, 1913 (Biaru; Halibabu). — Duncker — Weber and Beaufort, Fish. Indo Austral. Archip., vol. 4, p. 259, fig. 67, 1922 (Sinalur and Halibabu material).

— Fowler, Chrom. Bishop Mus., vol. 10, p. 126, 1928 (compiled).

Proc. Acad. Nat. Sci. Philadelphia, vol. 79, p. 264, 1927 (Philippines);

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Fishes of India, pt. 2, p. 357, 1876 (Andamans; India). — Klunzinger, Fische Roth. Meer., p. 133, pl. 10, figs. 4-a, 1884. — Day, Fauna British India, Fishes, vol. 2, p. 352, 1889. — Weber, Zool. Ergebn. Ned. Ost Ind., vol. 3, p. 451, 1894 (Sumatra, Timor, Amboina); Siboga Exped., vol. 57, Fische, p. 140, 1913 (Biaru; Salibabu)? — Duncker and Mohr, Mitteil. Naturh. Mus. Hamburg, vol. 42, p. 130, 1926 (Massawa Harbor, New Pommerania). — Fowler, Mem. Bishop Mus., vol. 10, p. 126, 1928 (compiled). Proc. Acad. Nat. Sci. Philadelphia, vol. 79, p. 264, 1927 (Philippines);

Mugil tang Bloch, Naturges.
Ausland. Fische, vol. II, p. 134,
pl. 395, 1794 (type locality, Afric

Indien, vol. 3, 1894, p. 407 (Koinino River, Kupang, Timor; Amparang River, Balangnipa, Celebes); Zool. Forschungsr. Austral. Nemow, vol. 5, 1895, p. 262 (Amboina, fresh water). — Fowler, Proc. Acad. Nat. Sci. Phila., 1906, p. 512 (Tahiti).

— Rewens, Notes Leyden Mus., vol. 16, 1895, p. 149 (Java, Borneo, Buru, Amboina, East Indies). — Perugia, Ann. Mus. Civ. Genova, ser. 2, vol. 16, 1896, p. 48 (Nentawei Island).

2624

Liza labiosa Fowler, Copeia, No. 58, p. 62, June 18, 1918 (Philippines).

? Rugilus bolocusis Veale, Philippine Journ. Sci., Vol. 4, No. 6, p. 500, pl. 4, November 1909 (type locality, Jolo).

Analysis of the genera.

a.' Two distinct or separated dorsal fins, or only slightly joined at their bases.

b.' Preopercle edge at least partly serrated or spiniferous.

c.' Lateral. Opercle ends in a single spine; scales moderate or small, 40 to 70; anal rays 8 or 9; pectorals and ventrals subequal.

d.' Lower edge of preopercle with spines or serrae; tongue smooth; lower gill rakers 16 or 17. Lates

d². Lower edge of preopercle entire; tongue with patch of fine, short teeth; lower gill rakers 11 to 13. Psammoperca

c². Opercle ends in 3 spines; scales rather or very small, 50 to 100; anal rays 9 to 13; pectorals small.

2625

Depth 3 4/5 to 3 7/8; head 3 2/3 to 3 7/8, width 1 3/5 to 1 2/3. Snout 3 2/3 to 3 4/5 in head; eye 4 1/5 to 4 1/3, 1 to 1 1/5 in snout, 2 to 2 1/8 in interorbital, no adipose lids; maxillary concealed, length 4 to 4 1/6 in head; mandible slightly broader than right angle; upper lip wide, width 1/3 of eye; interorbital 2 1/5 to 2 1/3 in head, very slightly convex. Gill rakers 25 + 33, finely lanceolate.

Scales 35 or 36 in lateral axial series to caudal base; 11 or 12 transverse, 21 or 22 predorsal, 3 rows on cheeks to preopercle ridge. Soft vertical fins largely scaly.

18617. Mompog, near Marinduque. March 3, 1909. Length 182 mm. [1190.] Stripes alternately dark red brown and silvery, coppery sheen over all. Hind half of opercle dark. First dorsal dusky, darkest at front and tip, other vertical fins pale reddish, fronts of dorsal and anal and edges of caudal darker. Pectoral like dorsal, dark at base. Ventral dark.

5812. Nabatas Point, Samar. July 24, 1909. Length 134 mm.

15679. Palay Bay vicinity, Luzon. June 16, 1909. Length 152 mm.

Axillary pectoral scale 3 in fin.
Scales with 5 basal radiating striae; circuli fine.

D. IV — I, 7, I, or I, 8, I, first spine $1\frac{4}{5}$ to $1\frac{7}{8}$ in head, first ray $1\frac{2}{5}$ to $1\frac{3}{5}$; A. III, 9, I, first ray $1\frac{1}{3}$ to $1\frac{2}{5}$; least depth of caudal peduncle $2\frac{1}{5}$; pectoral 1 to $1\frac{1}{10}$; ventral $1\frac{2}{5}$ to $1\frac{1}{2}$; caudal $3\frac{2}{5}$ to $3\frac{3}{5}$ in rest of fish.

Olive brown above, whitish below. Iris gray. Fins dull brown, dorsals and caudal little dusky marginally. Neutral dusky spot at pectoral origin.

Red Sea, Andamans, East Indies, Philippines, Melanesia.

5326 to 5330. Jolo reefs. March 6, 1908.
Length 148 to 177 mm. [417, 418.]

18553. Langao Point, east coast of Luzon.
June 24, 1909. Length 170 mm.

5735, 16143, 16144. Mahinog, Camiguin
Island. August 3, 1909. Length 110 to 175 mm.

15000, 15004 to 15007, 15800, 23035 to 23038,
23080 to 23083, 23386 to 23389. Makesi
Island, Palawan. April 5, 1909. Length
65 to 125 mm. Male with buccal eggs.

6199. Malapascua Island, north of Cebu.
March 16, 1909. Length 162 mm.

16399 and 21136. Mansalay, Mindoro.
June 4, 1908. Length 155 to 157 mm.

7308. Masbate, Masbate Island. April
21, 1908. Length 118 mm.

2627

C. h. V. P., two examples. Philippines.
Commercial Museum, of Philadelphia.
Length 115 to 120 mm.

132 and 133,
15743, 16310 to 16313, 16317 to 16319.
Endeavor Strait. December 23, 1908. Length
66 to 105 mm.

14108 and 14109. Endeavor Strait.
December 24, 1908. Length 75 to 87 mm.

16650 and 16654. Galera Bay, Mindoro.
June 9, 1908. Length 50 to 72 mm.

11869. Gubat, Luzon. June 23, 1909.
Length 93 mm.

23521. Guinigan Island, eastern Luzon.
June 4, 1909. Length 86 mm.

10914 and 10915. Isabela, Basilan Island.
April 11, 1909.
Length 162 to 168 mm.

17336, 17334, 17346, 23946. Isabela.
September 11, 1909. Length 73 to 95 mm.

~~Mugil~~ Chelon cremilabis (Forskål)

Mugil cremilabis Forskål, descript. Animal., pp. 14, 73, 1775 (type locality Red Sea). — Bonnaterre, Tabl. Encyclop., p. 180, 1788 (Red Sea). — Gmelin, Syst. Nat. Linn., pt. 1, p. 1398, 1789 (Red Sea). — Walbaum, Artedi Piscium, vol. 3, p. 226, 1792 (copied). — Schneider, Syst. Schneid. Bloch, p. 115, 1801 (Red Sea). — Lacépède, Hist. Nat. Poiss., vol. 5, pp. 384, 388, pl. 13, fig. 1, 1803 (Arabia, "le grand Ocean" [= Pacific]). — Rüppell, Neue Wirbelth., Fische, pp. 132, 1838 (Red Sea). — Valenciennes, Hist. Nat. Poiss., vol. 11, p. 123, 1836 (Red Sea). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 458, 1861 (copied). — Klunzinger, Verh. Zool. Bot. Gesell.

Red Sea, Zanzibar, Mozambique, Natal, South Africa, Madagascar, Mauritius, Réunion, Laccadives, Seychelles, Ceylon, Andamans, East Indies, Philippines, Riu Kiu, China, Japan, New South Wales, Melanesia, Micronesia, Polynesia, Galapagos and Revillagigedos Islands. This interesting species is easily known among all the others of its genus by the strongly contrasted caudal fin, which is marked by a median black band and two black inclined broad black bands on each caudal lobe.

20652. Port Ciego, Balabac. January 3, 1907. Length 45 to 59 mm. 6 examples.

8 examples. Silino Island, tidepool. August 10, 1907. Length 25 to 45 mm.

Wien, vol. 20, p. 826, 1870 (Red Sea); Fische Roth. Meer., p. 132, pl. 10, figs. 2-a, 1884. — Ogilby, Ann. Rep. Amateur Fisherm. Assoc. Queensland, p. 9, 1905-06 (1906) (Southern Queensland). — Beaufort, Bijdr. Dierk. Amsterdam, vol. 19, p. 108, 1913 (Naoneh, Waigiu). — ~~Weber and Beaufort~~ Weber and Beaufort, Fish. Indo Austral. Archip., vol. 4, p. 256, 1923 (Naoneh material).

↑ — Barnard, Ann. South Afric. Mus., vol. 21, pt. 1, p. 307, June 1925 (Natal).

— Fowler, Bull. Bishop Mus., No. 38, p. 10, 1927 (Baker and Palmyra Islands).

— Whitley, Rec. Austral. Mus., vol. 16, No. 1, p. 11, 1927 (Vanto, New Hebrides); Michaelmas Cay, Queensland

↑ A Journ. Pan Pac. Res. Inst., vol. 3, No. 1, p. 12, January-March 1928 (Santa Cruz Islands). — Fowler,

Wien, vol. 20, p. 826, 1870 (Red Sea); Fische Roth. Meer., p. 132, pl. 10, figs. 2-a, 1884. — Ogilby, Ann. Rep. Amateur Fisherm. Assoc. Queensland, p. 9, 1905-06 (1906) (Southern Queensland). — Beaufort, Bijdr. Dierk. Amsterdam, vol. 19, p. 108, 1913 (Naoneke, Waigiu). — ~~Beaufort~~ Weber and Beaufort, Fish. Indo Austral. Archip., vol. 4, p. 256, 1922 (Naoneke material). — Fowler and Bean, Proc. U. S. Nat. Mus., vol. 71, p. 14, 1927 (Tahiti). — Fowler, Bull. Bishop Mus., No. 38, p. 10, 1927 (Baker and Palmyra Islands). — Whitley, Rec. Austral. Mus., vol. 16, No. 1, p. 11, 1927 (Vanto, New Hebrides); Michaelmas Cay, Queensland Journ. Pan Pac. Res. Inst., vol. 3, No. 1, p. 12, January-March 1928 (Santa Cruz Islands). — Fowler,

Publications, No. 1938, July 1910, p. 49.

Synagris Klein, Gesell. Schauplatz, vol. 1, 1775, p. 442. Species nonbinomial. Type Sparus aurata Linnaeus.

body to caudal base; least depth of caudal peduncle 2 1/5 to 2 2/3 in total head length; pectoral 1 2/5 to 1 1/2; ventral 1 3/5 to 1 3/4.

Back brown, sides and below silvery white. Iris whitish. Dorsals and anals pale, with obscure dark scattered dots. In young membranes of spinous dorsal black terminally. Upper anterior angle of soft dorsal also black in young. At all ages caudal whitish, black median band from base and each lobe with broad, oblique, greatly contrasted blotch though leaving tip of each lobe white. Paired fins and anal usually pale or whitish. In young also bases of dorsals more or less narrowly dark.

Mem. Bishop Mus., vol. 10, p. 126, 1928 (Raiatea, Fate, Tahiti, Christmas Island, Jaluit, Guam, Mabemo, Society Islands, Apiang).

✓ vol. 11, no. 5, p. 324, 1931 (reference).

^ — McCulloch, Mem. Austral. Mus., vol. 5, pt. 1, p. 117, June 29, 1929 (reference). — Fowler, Mem. Bishop Mus.,

Proc., p. 228, 1865 (Nicobars). — Day, Fishes of India, pt. 2, p. 355, 1876 (Andamans; Nicobars). — Streets, Bull. U. S. Nat. Mus., no. 7, p. 93, 1877 (Christmas and Fanning Islands). — Günther, Journ. Mus. Godeffroy, vol. 7, pt. 15, p. 219, pl. 122, fig. A, 1881 (Kingsmills, Society Islands, Tuamotus, Ponape). — Pöhl, Cat. Mus. Godeffroy, no. 9, p. 34, 1884 (Ponape). — ~~pt. 2, p. 355, 1876~~ Day, Fishes of India, Suppl., p. 800, A 1888 (synonyms). — Duncker and

Mem. Bishop Mus., vol. 10, p. 126, 1928 (Raiatea, Fatè, Tahiti; Christmas Island, Jaluit, Guam, Makemo, Society Islands, Apiang).

✓ vol. 11, no. 5, p. 324, 1931 (reference). — Pellegrin, Mém. Acad. Malgache, vol. 16, fl. 179, 1933 (compiled).

Rüppell, Neue Wirbelth. Fisch., p. 132, 1835 (Red Sea). — Mugil crenilabris Kner, Reise Novara, Fische, p. 228, 1865 (Nicobars). — Day, Fishes of India, pt. 2, p. 355, 1876 (Andamans; Nicobars). — Streets, Bull. U. S. Nat. Mus., no. 7, p. 93, 1877 (Christmas and Fanning Islands). — Günther, Journ. Mus. Godeffroy, vol. 7, pt. 15, p. 219, fl. 122, fig. A, 1881 (Kingsmills, Society Islands, Tuamotus, Ponape). — Pöhl, Cat. Mus. Godeffroy, no. 9, p. 34, 1884 (Ponape). — ~~pt. 2, p. 355, 1876~~ Day, Fishes of India, Suppl., p. 800, 1888 (synonyms). — Duncker and

p. 343 (references). — Barnard, Linnaea South African Mus., vol. 21, pt. 2, October 1927, p. 661 (East London, Natal Coast).

Scales 50 or 51 in lateral line to caudal base and 5 more on latter; 11 scales above, 12 below, 12 predorsal forward to occiput, 5 rows on cheeks to angle of preopercle ridge, preopercle flange naked; caudal largely covered with fine scales, larger basally; dorsal and anals each with moderate basal sheath of small scales. Scales with 8 to 12 basal radiating striae; 71 to 75 apical denticles, with about 14 or 15 transverse series of basal elements; circuli fine.

D. $\overline{\overline{\text{IX}}}$, $\overline{\text{I}}$, 10, $\overline{\text{I}}$, fifth spine $1\frac{3}{4}$ to $1\frac{4}{5}$ in total head length, first ray $1\frac{2}{3}$ to $1\frac{7}{8}$; A. $\overline{\overline{\text{III}}}$, 11, $\overline{\text{I}}$, third anal spine $2\frac{3}{4}$ to 3, first ray $1\frac{7}{8}$ to $2\frac{1}{3}$. caudal $2\frac{4}{5}$ to $3\frac{1}{5}$ in combined head and

Mohr, Mitteil. Naturh. Mus. Hamburg, vol. 42, p. 130, 1926 (Jacquinot Bay, New Pommerania).

Querimana crenilabis Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 218, 1905 (1906) (reference). — Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 113, 1913 (reference).

Querimana crenilabris Seale, Occas. Pap. Bishop Mus., vol. 6, no. 1, p. 15, 1906 (Tahiti).

Liza crenilabis Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 256, 1911 (Guam, Hakemo, Jaluit).

↑ — Mc Culloch, Mem. Austral. Mus., vol. 5, pt. 1, p. 117, June 29, 1929 (reference).

Mohr, Mitteil. Naturh. Mus. Hamburg, vol. 42, p. 130, 1926 (Jacquinot Bay, New Pommerania).

Querimana crenilabis Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 218, 1905 (1906) (reference). — Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 113, 1913 (reference).

Querimana crenilabris Seale, Occas. Pap. Bishop Mus., vol. 6, no. 1, p. 15, 1906 (Tahiti).

Liza crenilabis Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 256, 1911 (Guam, Hakemo, Jaluit).

Chelon crenilabis Asthma, Ann. Carnegie Mus., vol. 13, nos. 3-4, p. 258, pl. 13, fig. 1, April 25, 1922 (Pescadores Islands). (head)

designated by Jordan and Evermann,
Genera of Fishes, pt. 1, 1917, p. 38.

Kuhlia ~~marg~~ Jordan and Bollman, Proc. U. S. Nat. Mus., vol. 12, 1889, p. 159. Chatham Island, Galapagos.

Kuhlia sternecki Steindachner, Sitz. Ber. Akad. Wiss. Wien, vol. 107, pt. 1, 1898, p. 461, pl. Gulf of Akabah.

Mugil cirrhostomus (Forster) Schneider, Syst. Ichth. Bloch, p. 121, pl. 32, 1801 (type locality, Pacific Ocean). — Valenciennes, Hist. Nat. Poiss., vol. 11, p. 127, pl. 312, 1836 (New Ireland). — Lichtenstein, Descript. Animal. Forster, p. 498, 1844 (Tahiti), p. 257 (Tanna). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 459, 1861 (reference).

Mugil fasciatus Valenciennes, Hist. Nat. Poiss., vol. 11, p. 125, 1836 (type locality, Red Sea).

Day, Fishes of India, pt. 1, 1875, p. 67, pl. 18, fig. 2 (Andamans); Fauna Brit. India, vol. 1, 1889, p. 504. —

Monomitis argenteus Klunzinger, Fisch. Roth. Meer., 1884, p. 2. —

~~Exallias brevis~~ Waite, Proc. Linn. Soc. New South Wales, ser. 2, vol. 9, 1894, p. 217 (Lord Howe Island).

Ulua bennetti Bleeker, Verh. Batav. Genootsch., no. 8, vol. 25, 1853, p. 32 (on Bennett). — Peters, Monatsb. Akad. Wiss. Berlin, 1855, p. 238 (Mozambique). — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 270 (no locality, probably South Africa?). — Hatzow and Lenz, Abhandl. Senckenberg. Naturf. Gesell., vol. 21, 1889, p. 500 (Zanzibar; Majunga, West Madagascar).

Mugil lauvergnii Eydoux and Souleyet, Voy. Bonite, Zool., vol. 1, p. 174, pl. 4, fig. 3, 1841 (type locality, Macao, China). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 410, 1861 (name). — Bleeker, Ned. Tijds. dierk., vol. 4, p. 143, 1873 (1874) (reference). — Chu, Biol. Bull. St. John's Univ., no. 1, p. 104, January 1931 (reference).

Mugil macrocheilus Bleeker, Nat. Tijds. Ned. Indië, vol. 6, p. 518, 1854 (type locality, Kokos-Keeling Islands); vol. 7, p. (38) 43, 1850 (Kokos-Keeling); vol. 16, p. 280, 1858 (East Indies; diagnosis in key).

Boulengerina taeniura Jordan and Thompson, Proc. U. S. Nat. Mus., vol. 41, 1911, p. 722 (Tanegashima, Okinawa, Misaki, Samoa, Lord Howe Island, off Western Mexico). — Snyder, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 413 (Misaki and Tanegashima).

Nafole taeniura Snyder, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 797 (Okinawa). — Jordan and Richardson, Mem. Carnegie Mus., vol. 6, No. 4, 1914, p. 248 (Misaki).

Perca argentea (non Linnaeus) Bennett, Fishes of Ceylon, 1830, pl. 22. Ceylon at Fort Point de Galle.

Lates argenteus Klunzinger, Verh. zool. bot. Gesell. Wien, vol. 20, 1870, p. 730 (Two Brothers Island and Kosseir, Red Sea). — Günther, Journ. Mus. Godeffroy, vols. 2-3, pts. 5-6, 1873, p. 25, pl. 19, fig. C (Tahiti and Kingsmill Islands). —

Mugil macrochilus Günther, Cat. Fish. Brit. Mus., vol. 3, p. 458, 1861 (name). — Day, Proc. Zool. Soc. London, 1870, p. 685 (Andamans).

Mugil rüppellii Günther, Cat. Fish. Brit. Mus., vol. 3, p. 458, 1861 (type locality, Red Sea).

Mugil neocaledonicus Castelnau, Proc. Zool. Acclimat. Soc. Victoria, vol. 2, p. 116, 1873 (type locality, Nouméa, New Caledonia). Liza neocaledonica Jordan and Veale, Bull. Bur. Fisheries, vol. 25, p. 218, 1905 (1906) (reference).

Mugil papillosus Macleay, Proc. Linn. Soc. New South Wales, vol. 8, p. 270, fig. (head), 1883 (type locality, Normanby Island, South east New Guinea, in fresh water).

Kuhlia taenuira Boulenger, Cat. Fishes Brit. Mus., vol. 1, 1895, p. 37 (Socotra, Zanzibar, Seychelles, Port Natal, South Africa, Mauritius, Laccadives, China, Tahiti). —Waite, Records Austral. Mus., vol. 5, pt. 3, 1904, p. 164 (Lord Howe Island). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 255 (Tutuila, Samoa). — Regan, Journ. Linn. Soc. London, vol. 12, ser. 2 1907, p. 228 (Praslin, Seychelles Group). —Snodgrass and Heller, Proc. Wash. Acad. Sci., vol. 6, 1905, p. 366 (Galapagos). — Jordan and Starks, Proc. U. S. Nat. Mus., vol. 39, 1906, p. 698 (Tanegashima, Japan). — Steindachner, Denks. der Akad. Wiss. Wien, vol. 71, pt. 1, 1907, p. 127 (brooks of Kalansiye; Teich Lebine at Kor Sarrieh, Sokôtra). — Gilchrist and Thompson, Ann. South Afr. Mus., vol. 6, 1908–11, p. 149 (Natal). — Boulenger, Cat. Fresh water Fishes Africa, vol. 3, 1915, p. 95 (South Africa and Port Natal). —McCulloch, Australian Zool., vol. 1, pt. 7, 1919, p. 48, pl. 19, fig. 175a (Port Jackson). — Fowler and Bean, Proc. U. S. Nat. Mus., vol. 71, 1927, p. 14 (Tahiti). — Barnard, Ann. South Afric. Mus., vol. 21, 1927, p. 496 (East London and Natal coast).

Mugil (Liza) papilloza Mc Culloch and Whitley, Mem. Queensland Mus., vol. 8, pt. 2, p. 141, July 7, 1925 (reference).

Liza papilloza Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 218, 1905 (1906) (reference). — Mc Culloch, Mem. Austral. Mus., vol. 5, pt. 1, p. 117, June 29, 1929 (reference).

fins close together.

Bengal Bay to China Sea and North Australia.

Psammoperca waigiensis (Cuvier).

Labrax waigiensis Cuvier, Hist. Nat. Poiss., vol. 2, 1828, p. 83. Waigiu. — Lesson, Voy. Coquille, Zool., vol. 2, pt. 1, 1830, p. 237 (Offack Bay, Waigiu).

Psammoperca waigiensis Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 69 (Australia, Victoria, China). — Kner, Reise Novara, Zool., vol. 1, pt. 5, 1865, p. 13 (Hong Kong and Manila). — Günther, Ann. Mag. Nat. Hist. London, ser. 4, vol. 10, 1872, p. 426 (Australia, Victoria, New South Wales, Torres Straits, Manila, China). — Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, p. 108, pl. (28) 306, fig. 2 (Singapore, Bintang, Banka, Java, Madura, Borneo, Celebes, Waigiu, Manila). — Klunzinger,

depth 3 2/5 to 3 2/3; head 4 to 4 1/5; width 1 1/4 to 1 2/5. Snout 3 to 4 2/3 in head, obtuse; eye 3 1/2 to 5 1/6, nearly subequal to slightly larger than snout, 1 3/5 to 1 3/4 in interorbital, without or with only rudimentary adipose rim; maxillary with only tip exposed; mouth forming obtuse angle, width 3 to 3 1/3 in head; lips broad, upper with width 2/3 or more of eye, with 5 rows of papillae on lower area, lower of which branched, lower lip thickly papillate over exposed surface; interorbital 1 7/8 to 2 1/4 in head, low, broadly convex; preorbital not notched, serrated below.

Scales 38 to 40 in lateral series to caudal base, 12 or 13 transversely, 22 predorsal. Soft vertical fins and paired fins with small scales basally. Pectoral without enlarged axillary scale.

D. $\underline{\underline{IV}}$ — $\underline{\underline{I}}, I, \underline{\underline{6}}, I$ or $\underline{\underline{I}}, I, \underline{\underline{7}}, I$, first spine $1\frac{3}{4}$ to $1\frac{7}{8}$ in head, first ray $1\frac{1}{2}$ to $1\frac{4}{5}$; A. $\underline{\underline{III}}, \underline{\underline{9}}, I$, first ray $1\frac{2}{5}$ to $1\frac{3}{4}$; least depth of caudal peduncle $1\frac{7}{8}$ to 2; pectoral 1 to $1\frac{1}{5}$, rays $\underline{\underline{II}}, \underline{\underline{15}}$; ventral rays $\underline{\underline{I}}, 5$, fin $1\frac{3}{5}$ to $1\frac{3}{4}$ in head; caudal $3\frac{1}{5}$ to $3\frac{3}{5}$ in rest of fish.

Olive to olive brown above, white on sides and below. Iris and sides of head whitish. Fins pale, often grayish terminally. Small blackish spot at pectoral origin.

Red Sea, Natal, Madagascar, Andamans, Nicobars, East Indies, Queensland, Philippines, China, Japan, Melanesia, Micronesia, Polynesia.

2638

Six examples. Bacooc, Luzon. June 15, 1908. Length 36 to 105 mm.

One example. Calugan River, 3 miles from mouth near Pakuan Bay, Mindoro. December 11, 1908. Length 66 mm.

31 examples. Cuyo Island. April 9, 1909. Length 23 to 57 mm.

One example. Mahinog, Camiguin Island, in brackish water. August 3, 1909. Length 85 mm. Upper lip thick, broad. Scales 38, Axillary pectoral scale $\frac{1}{4}$ of fin. D. $\frac{III}{II}$, 9, $\frac{I}{I}$. Pectoral $1\frac{1}{3}$ in head.

30 examples. Port Van Pio Quinto, Camiguin Island. March 11, 1908. Length 35 to 49 mm.

Two examples. Santa Cruz Island, Marinduque. April 24, 1908. Length 69 to 147 mm.

Depth 2 3/4 to 2 4/5, head 2 1/2 to 2 3/5, width 2 1/4 to 2 1/5. Snout 3 2/3 to 4 1/8 in head from snout tip; eye 2 7/8 to 3, greater than snout or interorbital; maxillary reaches 2/5 to 1/2 in eye, expansion 1/8 to 2, length 2 to 2 1/8 in head; teeth villiform, in bands in jaws, on vomer and palatines; interorbital 4 1/2 to 4 2/3, nearly level; preopercle ridge entire, edge minutely denticulate. Gill rakers 7+17, lanceolate, of which 3 uppermost and 3 lowermost rudiments, longer than gill filaments or 1/5 in eye.

Scales 21 or 22 in lateral line to caudal base and 3 more on latter, 2 above, 4 below, 4 predorsal, 2 rows on cheek to preopercle ridge; muzzle, including maxillary, suborbitals

2639

Two examples. Kema, Gulf of ~~Boni~~, Tomini, Celebes. November 13, 1909. Length 86 to 111 mm.

Amia margaritophora (Bleeker)

Apogon margaritophorus Bleeker, Nat. Tijdr. Ned. Indië, vol. 7, 1854, p. 363. Batjan. — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 234 (copied). — Beaufort, Bijdr. Dierk., Amsterdam, 1913, p. 115 (Macassar).

Peters, Monatsb. Akad. Wiss. Berlin, 1868, p. 256 (Pulo brani, Singapore). — Károli, Termesz. Füzetek, Budapest, vol. 5, 1882, p. 152 (Tarangoon River, Singapore). —

Amia margaritophora Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, p. 94, pl. (23) 301, fig. 4 (Singapore, Bawean, Batjan). — Evermann and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 74 (Baco).

2640

Chelon
~~Mugil~~ heterocheilus (Bleeker)

Mugil heterocheilos Bleeker, Nat. Tijds. Ned. Indië, vol. 9, p. (192) 198, 1855 (type locality, Batjan); vol. 13, p. 478, 1857 (Karangbolong, Java); vol. 16, p. 280, 1858 (East Indies; diagnosis in key); Act. Soc. Sci. Ind. Néerl., vol. 5, no. 8, p. 1, 1858–59 (Kiabatdiatas, Celebes); Nat. Tijds. Ned. Indië, vol. 22, p. 229, 1860 (Rewata River, Ceram). — Fowler, Mem. Bishop Mus., vol. 10, p. 126, 1928 (compiled).

fig. 1, pl. (46) 324, fig. 2 (Java, Bali, Sumatra, Nias, Celebes, Batjan, Buru, Amboina, Ceram).

Rules papuensis. Macleay, Proc. Linn. Soc. New South Wales, vol. 8, 1883, p. 257. Goldie River in freshwater, New Guinea.

Mugil heterochilus Günther, Cat. Fish. Brit. mus., vol. 3, p. 457, 1861 (copied). — Weber, Zool. Ergeb. Ned. Ost Ind., vol. 3, p. 451, 1894 (Celebes, Batjan, Ceram, Amboina); Siboga Exped., vol. 57, p. 141, 1913 (Celebes). (— Duncker, Mitteil. Naturh. Mus. Hamburg, vol. 42, p. 130, 1926 (New Pommerania; Admiralty Islands). — Weber and Beaufort, Fish. Indo Austral. Arch., vol. 4, p. 258, 1922 (Langala, Celebes; Ambon).

Bean, Proc. U. S. Nat. Mus., vol. 33, 1907, p. 242 (Zamboanga). — Fowler, Proc. Acad. Nat. Sci. Phila., 1907, p. 264 (name only). — Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, 1911, p. 280, pl. 2, fig. 2 (Tipaerui River, Papeite, Society Islands). — Boulenger, Cat. Fresh Water Fishes Afr., vol. 3, 1915, p. 96, fig. 78 (South Africa). — Barnard, Ann. South Afr. Mus., vol. 21, 1927, p. 496 (South African seas).

Dules maculatus Valenciennes, Hist. Nat. Poiss., vol. 7, 1831, p. 475. Celebes. Pl. 3, fig. 1 (Rusaie, Carolines). Kuhlia maculata Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, 1911, p. 281, Dules tericinctus Quoy, Voy. Beagle, Zool., 1842, p. 17. River Matavai, Tahiti. Monoprion ciliatus (non Perca ciliata Cuvier) Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, p. 120, pl. (38) 316,

Depth 4 to 4 1/3; head 4 to 4 3/4. Snout slightly convex, shorter than eye; eye 3 or more in head, nearly 1 1/2 in postorbital, without adipose lids; maxillary concealed or nearly so; upper lip very thick, high, forms front border of snout, with or without indistinct series of obtuse low papillae; lower lips entire, emarginate at symphysis; interorbital nearly 2 in head, slightly convex; preorbital somewhat emarginate, hind edge finely denticulate.

Scales 40 or 41 in lateral line; 12 or 13 transversely, 20 predorsal forward to snout. Soft vertical fins scaly. Pectoral with or without small axillary scale.

D. IV — I, 8, first spines longer than postorbital part of head but lower than soft dorsal or anal,

origin of first dorsal at 12th or 13th lateral scale, origin of second at 24th or 25 lateral scale, or somewhat behind anal origin; A. III, 9; caudal emarginate; least depth of caudal peduncle nearly 2 in head; pectoral shorter than head in young, subequal or longer with age, not reaching first dorsal origin.

Silvery, olivaceous above, fins yellowish. Generally dark spot superiorly at pectoral base. Length 228 mm. (Weber and Beaufort.)

East Indies.

Genus Agualomugil Ogilby

Agualomugil Ogilby, Ann. Queensland Mus., No. 9, pt. 1, p. 28, October 14, 1908. (Type Mugil nasutus De Vis, orthotypic.)

Head depressed. Mouth moderate, forms obtuse angle, inferior, not protractile. Maxillary concealed. Jaws with spatulate cilia. Upper lip thin. Nostrils widely separated, anterior partly valvular and inferior, posterior superior. Terminal edge of preorbital concealed. Gill rakers numerous, slender, rather short. Scales large, cycloid. Head scaly, except snout tip and lower jaw. Axillary pectoral scale

Genus *Squalomugil* De Vis

Squalomugil De Vis, Proc. Linn. Soc. New South Wales, vol. 7, p. , 1883. (Type ~~locality, Cardwell, Queensland). Macleay, Proc. Linn. Soc.~~ *Squalomugil nasutus De Vis*, monotypic.)

short, pore inconspicuous. Soft dorsal with spine and 7 rays. Anal with 3 spines and 8 rays, begins far before second dorsal. Caudal feebly emarginate. Caudal peduncle stout. Pectoral rays 15, fin long, falciform. Outer ventral ray not longer than second, inner free.

Queensland. Named "in allusion to its flattened head and inferior mouth."

Iris gray. Suprascapular region and upper hind part of opercle dusky brown. Dorsals, caudal and pectoral brownish, membranes of fins terminally neutral dusky to blackish, more broadly so on spinous dorsal. Anal and ventral whitish.

Red Sea, Arabia, India, East Indies, Philippines, Indo China, China, Riu Kiu, Japan, Korea.

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Agonostomus nasutus (de Vis)

~~Mugil~~ Mugil nasutus de Vis, Proc. Linn. Soc. New South Wales, vol. 7, pt. 4, p. 621, April 1883 (type locality, Cardwell, Queensland). — Macleay, Proc. Linn. Soc. New South Wales, vol. 9, pt. 1, p. 42, 1884 (Rockingham Bay, Queensland).

Agonostomus nasutus

McCulloch and Whitley, Mem. Queensland Mus., vol. 8, pt. 2, p. 141, July 7, 1925 (reference). — McCulloch, Mem. Austral. Mus., vol. 5, pt. 1, p. 117, June 29, 1929 (reference).

some showing lilac tints. Iris silvery white. Pockets of scales on back drab brown. Transverse deeper brown band across caudal peduncle at caudal base. Dorsal and caudal dusted with brownish, other fins whitish.

Only known from the type.

depth 5 3/4, upper profile horizontal on head and nape, slightly arched on back, lower profile strongly and regularly convex; head 4 1/3, broad, flat. Snout 5 in head, muzzle rounded, sharp, much produced; orbit 6 in head, narrow adipose membrane circumferential; mouth toothless, half way between muzzle tip and eye, rami of jaws forming obtuse angle, depth of mouth cleft 2/7 its breadth; lips thin; interorbital 4 in head.

Scales 28 in lateral series; 11 transversely. Soft dorsal and caudal scaly.

D. IV — I, 7, first dorsal origin over tenth lateral scale and nearer

Sparus chrysopterus Kishinouye,
Jour. Coll. Sci. Tokyo, vol. 19, 1907, p. 327.
Kisuin, Shibotsu, Inland Sea, Pacific
coast Hondo.

Depth 2 1/4 to 2 1/2; head 2 3/4 to 2 7/8,
width 2 to 2 1/4. Snout 2 3/4 to 2 4/5 in head;
eye 4 1/3 to 4 1/2, 1 3/5 to 1 2/3 in snout, 1 1/10 to
1 3/5 in interorbital; maxillary reache to or
3/5 in eye, expansion 1/2 in eye, length 2 1/2
to 2 7/8 in head; 6 conic canines in front
of each jaw, sometimes only 4 above; 3 rows
of molars each side below and 4 rows
each side above, next to innermost poster-
orly with broadest or largest teeth,
sometimes only 3 rows of molars above and
2 below in young; interorbital 3 2/5 to 4 1/10,
broadly convex; infraorbital depth to
maxillary end 1 1/2 to 1 3/4 in eye, preopercle
edge entire. Gill rakers 5 + 10 or 11, short
compressed points, 3 1/2 in gill filaments,

caudal than hind orbital edge, soft dorsal origin over twentieth lateral scale or middle of anal; caudal emarginate; D. II, 8; pectoral long as head, short axillary scale lanceolate-shaped.

Color not given. Length 254 mm. (de Beaux.)

Queensland.

1/m Veale, Philippine Journ. Sci., vol. 9, no. 1, 1914, p. 67 (Hong Kong). 1/m Herre and Montalban, Philippine Journ. Sci., vol. 33, no. 4, Aug. 1927, p. 431; pl. 6, fig. 1. (Paracel, Amoy, Hong Kong). 1/m Fowler, Journ. Bombay Nat. Hist. Soc., vol. 33, no. 1, Sep. 30, 1928, p. 114 (Bombay).

Pagrus (Chrysophrys) datnia Steindachner, Denk. Akad. Wiss. Wien, vol. 11, 1876, p. 201 (China, India, Manila, Ningpo, Tokyo, Nagasaki).

Chrysophrys longirostris Valenciennes, Hist. Nat. Poiss., vol. 6, 1830, p. 116. Bengal.

Chrysophrys hasta (not Schneider) Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 490 (part; Calcutta, Ganges, Bay of Bengal).

Pagrus flavoprimnis Günther, Cat. Fish. Brit. Mus., vol. 1, 1859, p. 490 (no description; name in text). Bay of Bengal.

2649

Genus Myxus Günther

Myxus Günther, Cat. Fish. Brit. Mus., vol. 3, p. 466, 1861 (Type Myxus elongatus Günther, designated by Jordan, Genera of Fishes, pt. 3, p. 307, 1919.)

Chaenomugil Gill, Proc. Acad. Nat. Sci. Philadelphia, vol. 15, p. 169, 1863. (Type Mugil proboscideus Günther, orthotypic.)

Neomyxus Steindachner, Sitzg. Ber. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 78, pp. 77, 384, 1878. (Type Myxus (Neomyxus) elateri Steindachner, monotypic.)

Body elongate, fusiform. Head pointed. Eye large, advanced, high. Mouth cleft not horizontal, oblique, usually longer than wide, Maxilla small. Lateral line not distinct. Vertical fins more or less scaly. Spinous dorsal postmedian in body without caudal. Soft dorsal and anal opposite. Caudal large, deeply emarginate. Pectoral long, not reaching spinous dorsal. Ventral inserted below middle of pectoral.

Upper lip not fleshy, usually small. Lower lip small. Teeth as row of very small points on upper lip, usually smaller and weaker in lower lip.

— Weber, Siboga Exped., vol. 65, 1913, p. 206 (Valeyer). — Gaimard, Linn. South Africa Mus., vol. 21, 1927, p. 469 (Mozambique coast).

Plectropoma maculatus Bloch and Richardson, Proc. U. S. Nat. Mus., vol. 37, 1910, p. 442 (compiled).

Paracanthistius maculatus Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, p. 26 (Singapore, Java, Celebes, Halmahera, Ternate). — Beaufort, Bijdr. Dierk., Amsterdam, 1913, p. 111 (Macassar).

Acanthistius maculatus Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, pl. (13) 291, fig. 3.

Plectropoma punctatum Quoy and Gaimard, Voy. Uranie, Zool., p. 7, 1824, p. 318, pl. 45, fig. 1. Mauritius.

Plectropoma personiferum Fowler, Journ. Acad. Nat. Sci. Phila., ser. 2, vol. 12, 1904, p. 520, pl. 17, upper figure. Padang, Sumatra.

Analysis of Species

a.' Lateral scales 32 to 34; anal rays 10 or 11. birarae.

a.² Lateral scales 37 to 48.

b.' Anal rays 8. barnardi.

b.² Anal rays 9 or 10.

c.' Eye $3\frac{3}{4}$ to $4\frac{4}{5}$ in head.

d.' Pectoral with dark spot at origin; lateral scales 39; predorsal scales 17 or 18; anal rays 10; eye $3\frac{3}{4}$ in head. profugus.

d.² Pectoral without dark spot at origin.

e.' Pectoral $1\frac{1}{5}$ to $1\frac{2}{5}$; anal rays 9 or 10.

f.' Predorsal scales 37 to 48; eye $3\frac{1}{4}$ to $4\frac{4}{5}$. chaptalii.

f.² Predorsal scales 18; eye 3. superficialis.

e.² Pectoral $1\frac{1}{8}$; eye $3\frac{7}{8}$. leuciscus.

c.² Eye $4\frac{4}{5}$ to 6 in head; lateral scales 43 to 46; pectoral with dark spot at origin. elongatus.

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a.^{3} lateral scales 50; anal rays
11 or 12. analis.

2653

Nuyxus birarae (Duncker and Mohr)

Agonostoma birarae Duncker and Mohr, Mitteil. Naturh. Mus. Hamburg, vol. 42, p. 134, fig. 9, 1926 (type locality, Liebliche Islands, Howe Harbor and Vangoi, New Pommerania).

Nuyxus birarae Fowler, Mem. Bishop Mus., vol. 10, p. 129, 1928 (compiled).

Plectropomus leopardus (Lacépède).

Holocentrus leopardus Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 332, 367. No locality.

Plectropoma leopardinum Cuvier, Hist. Nat. Poiss., vol. 2, 1828, p. 392, pl. 36 (Indian Ocean). — Schlegel, Fauna Japon., Poiss., p. 1, 1842, p. 12 (Nagasaki). — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 157 (Louisades). — Károli, Természet. Füzetek, Budapest, vol. 5, 1882, p. 150 (Ceylon).

Plectropoma leopardus Richardson, Ichth. China Japan., 1846, p. 250 (compiled).

Paracanthistius leopardinus Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, p. 25 (Java).

Acanthistius leopardinus Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, pl. (18) 296, fig. 3.

Depth 3 1/2; head 3 1/3. Snout 3 7/8 in head; eye 2 2/5, greatly exceeds snout; maxillary reaches without adipose lids
7/8 in snout, length 3 1/2 in head; lips narrow, thin; teeth fine in both jaws; interorbital rather high; preorbital with front edge entire, inclined, lower edge denticulate.

Scales 32 to 34 in lateral series.

D. IV — I, 7 or 8, first spine 3 in head, soft dorsal height 2 7/8; A. II, 10 or 11, fin height 2; caudal F 1 4/5, truncate or only very slightly emarginate; least depth of caudal peduncle 2 3/4; pectoral 1 2/5, rays 15 or 16; ventral rays 6, origin below spinous dorsal origin, fin 2 7/8 in head.

depth 1 9/10 to 2 1/8; head 3 to 3 1/5, width 1 3/4 to 2. Snout 2 2/5 in head; eye 4 1/8 to 5, 1 2/3 to 2 in snout, 1 1/4 to 1 2/3 in interorbital; maxillary reaches 1/5 to 2/5 in eye, expansion 1 1/2 to 2 in eye, length 2 1/3 to 2 2/5 in head; lips moderate, fleshy; 6 conic teeth above in front, 4 below; 4 lateral rows of teeth above, with outer row conic and inner all molar like, also 3 rows, all molars, below; interorbital 3 to 3 1/8 in head, broad convex; preopercle flange remotes. Gill rakers 5 + 12, lanceolate, robust, short, 1/2 of gill filaments, which 1 1/3 in eye.

Scales 40 or 41 in lateral line to caudal base and 5 or 6 more on latter; 5 above, 10 or 11 below, 10 to 12 predorsal to occiput and 8 to 10 more forward till over middle of eyes; 6 or 7 rows across

2655

Golde brown, lower sides yellowish white. Fins hyaline. Caudal base somewhat darker than back. Length 22 mm.

(Lunaker and Mohr)

Melanesia.

South Africa, No. 4, 1918, p. 93.

Chrysophrys (Acanthopagrus) vagus Peters, Archiv Naturgesch., 1855, pt. 1, p. 242 (Mozambique).

Pagrus flavipinnis Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 490. Bay of Bengal. (Name in text; no description.)

Pagrus caffer Castelnau, Mém. Poiss. Afrique Australe, 1861, p. 30. Port Natal.

Chrysophrys novæ-caledoniæ Castelnau, Proc. Zool. Acclimatis. Soc. Victoria, vol. 2, 1873, p. 110. Nouméa, New Caledonia.

Chrysophrys estuarius Gilchrist and Thompson, Ann. South African Mus., vol. 6, 1908-11, p. 170. Natal; Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 361 (copied).

Chrysophrys robinsoni Gilchrist and Thompson, Ann. South African Mus., vol. 6, 1908-11, p. 170. Natal; Ann. Durban Mus., vol. 1, p. 4, 1917, p. 362 (copied).

2656

Inyxus barnardi Gilchrist and Thompson

Inyxus barnardi Gilchrist and Thompson, Ann. South Afric. Mus., vol. 13, pt. 3, p. 83, May 7, 1914 (type locality, Durban Bay, Natal). — Barnard, Ann. South Afric. Mus., vol. 21, pt. 1, p. 311, June 1925 (type).

Depth $3\frac{3}{4}$; head 3. Snout $4\frac{1}{2}$ in head; eye $4\frac{1}{2}$, subequal with snout, $1\frac{1}{2}$ in interorbital, more inclined inferiorly, with broad adipose lids; maxillary concealed, scarcely reaches front eye edge; mouth forming right angle; teeth uniserial above and below, none on vomer or palatines; interorbital slightly convex; preorbital edges serrated.

Scales 41 in lateral series; 15 transversely, 23 predorsal, 2 rows on cheeks. Pectoral without axillary scale.

D. $\frac{IV}{=}$ — $\frac{I}{=}$, 8, first spine 2 in head, second dorsal height 2; A. $\frac{III}{=}$, 8, front half before first dorsal, third spine $1\frac{2}{3}$ in head; caudal deeply forked, least depth of caudal peduncle $3\frac{1}{5}$; pectoral $1\frac{2}{3}$; ventral inserted midway between pectoral and first dorsal origins.

Silvery, darks above. Scales with darks streaks on center forming indistinct longitudinal lines on body. Top of head and snout with minute darks brown specks. Length 60 mm. (Gilchrist and Thompson, Barnard.)

Natal.

22620 U.S.N.M. Kadzusa, Japan.
Japanese Government. Length 153 mm.

45269 U.S.N.M. Yuensan, Corea.
P.L. Jouy. Length 41 to 54 mm. 4 examples.
Cat. Japan schlegeli.

45270 U.S.N.M. Japan. P.L. Jouy.
Length 144 mm.

45913 U.S.N.M. Tokyo. Albatross
Collection. Length 140 mm.

49512 U.S.N.M. Tokyo. Albatross
Collection. Length 80 to 84 mm. 2 examples.

49515 U.S.N.M. Tokyo. Albatross
Collection. Length 146 mm.

57518 U.S.N.M. Yokohama. Albatross
Collection. Length 143 mm.

57545 U.S.N.M. Yokohama. ~~Albatross~~
P.L. Jouy. Length 138 mm.

72087 U.S.N.M. Naha, Okinawa, Riu Kiu.
Albatross Collection 1906. Length 163 mm.

2658

Myxus profugus Mohr

Myxus profugus Mohr, Zool. Jahrb. Jena, vol. 54, p. 184, fig. 6, 1927 (type locality, "Japan; Formosa").

Depth 4 1/4; head 3 4/5. Snout 4 in head; eye 3 3/4, little greater than snout, nearly 2 in interorbital; mouth cleft reaches front eye edge, length 3 3/4 in head; lips thin, both with fine teeth; interorbital low, preorbital below and posteriorly denticulated.

Scales 39 in lateral series; 12 or 13 transversely, 18 predorsal, 7 interdorsal. Scales ctenoid, on second dorsal, anal and pectoral cycloid.

D. IV 9 (I, 8 on figure), second spine 1 4/5 in head, first

Genus Parambassis Bleeker

Parambassis Bleeker, Nat. Verh. Holland. Maatsch. Haarlem, vol. 2, ser. 3, 1874, pp. 86, 102. Type Ambassis apogonoides Bleeker, orthotypic.

Teeth in the jaws slender, pointed, in several series with some of outer much larger and canine like. Scales usually small, 60 to 70 in lateral series.

In most other respects this genus greatly resembles Ambassis.

ray 2 1/8; A. III, 10, first branched ray 2; caudal 1 1/3, moderately emarginate behind; least depth of caudal peduncle 3; pectoral 1 1/3, rays 16 or 17, with axillary scale 3 3/4 mm long; ventral rays I, 5, fin 2 1/5 in head.

Reddish brown, back darker. Along greater part of body posteriorly broad clear band. Dorsals with rays and membranes with blackish dots. Anal, pectoral and caudal rays very sparsely pigmented. Anal and paired fin membranes hyaline. Pectoral with dark upper axillary blotch. Length 83 mm. (Mohr.)

"Japan and Formosa."

June 18, 1918, p. 64 (Philippines); Journ. Bombay Nat. Hist. Soc., vol. 31, Nov. 1926, p. 7 (Bombay). 1/27 Herre and Montalban, Philippine Journ. Sci., vol. 33, No. 4, Aug. 1927, p. 430, pl. 6, fig. 2 (Paraoir, Subic Bay, Manila, Pasay, Malum River; Sandakan, Borneo). 1/27 Fowler, Journ. Bombay Nat. Hist. Soc., vol. 32, No. 4, May 31, 1928, p. 701 (Ceylon); Mem. Bishop Mus., vol. 10, 1928, p. 218 (copied day); Proc. Acad. Nat. Sci. Philadelphia, 1929 (1930), p. 576 (Shanghai), p. 610 (Hong Kong).

2660

Mugil chaptalii (Eydoux and Souleyet)

Mugil chaptalii Eydoux and Souleyet, Voy. Bonite, Zool., vol. 1, p. 171, pl. 4, fig. 1 (2 figs.), 1841 (type locality, Hawaii). — Günther, Cat. Fish. Brit. Mus., vol. 3, p. 410, 1861 (reference).

Chaenomugil chaptalii Jenkins, Bull. U. S. Fish Comm., vol. 22, p. 438, 1902 (1903) (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 140, fig. 49, 1903 (1905) (Honolulu; Hilo; Kailua). — Jordan and Snyder, Bull. U. S. Fish Comm., vol. 26, p. 208, 1906 (1907) (Honolulu).

Chaenomugil chaptali Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 218, 1905 (1906) (reference).

the cheeks are certainly variable. They are usually in 2 rows, though may even vary to the condition found in Jordan and Veale's figure of Priopis lungi, while more or less evenly biserial on the other cheek. Until the figure by Day of Ambassis urotaenia shows the scales on the cheeks very large and in a single row. Many examples we find have the front half of the cheeks with a single row of large deep scales and the posterior half biserial ~~and~~ or made up of narrower scales. We also unite Ambassis amboyna Günther and Ambassis lala Jordan and Veale as synonyms.

Neomyxus chaptali Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 260, 1911 (Funafuti, Ellice Islands; Guam; Arno Atoll; Makemo). — Fowler and Silvester, Marine Pap. Carnegie Inst., p. 115, 1922 (Pago Pago).

Neomyxus chaptalii Fowler, Copeia, no. 122, p. 82, November 20, 1922 (Hawaii). — Fowler and Ball, Bull. Bishop Mus., no. 26, p. 11, 1925 (French Frigates Shoal, Laysan, Johnston, Lisianski Islands). — Fowler, Bull. Bishop Mus., no. 38, p. 10, 1927 (Palmyra, Washington, Tongareva, Baker, Christmas Islands); Mem. Bishop Mus., vol. 10, p. 127, 1928 (Honolulu, Hilo, Kailua, Pago Pago, Nukuhiva,

Red Sea, Portuguese East Africa, Natal, Seychelles, India, Andamans, Nicobars, East Indies, Philippines, China, Micronesia, Melanesia, Polynesia. Most of our materials agree with the second of Bleeker's figures, or figure 1 of his plate 73. Although some specimens show the lateral line incomplete, even skipping 1 or 2 scales, or the breaks may be simply due to the irregularity of the scale rows, we have not seen the descent exactly as Bleeker shows. We find however that sometimes an irregular lateral line may occur on one side of the body and on the other form an even continuous curve. Most all preserved specimens show a dark median area on each caudal lobe, possibly a good character of distinction. The rows of scales on

Laysan, types of Chaenomugil nauticus,
French Frigates Shoal, Laysan,
Johnston Island, Oahu, Wake
Island, Hawaii, Makemo, Mangareva,
Guam, Funafuti, Society Islands).

Ambassis macracanthus Bleeker, Verh. Batav. Genootsch. (Percoid), vol. 22, 1849, p. 30. Batavia, Java. — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 227 (copied). — Day, Proc. Zool. Soc. London, 1870, p. 681 (Andamans, in estuaries). — Károli, Termesz. Füzetek, Budapest, vol. 5, 1882, p. 151 (Varangaon River, Singapore).

Ambassis productus Guichenot, Mém. Soc. Sci. Cherbourg, vol. 12, 1866, p. 130. Madagascar.

Ambassis klunzingeri Steindachner, Sitzg. Ber. Akad. Wiss. Wien, vol. 82, p. 1, 1880, p. 238. Tohizina, Madagascar. — Klunzinger, Zisch. Roth. Meer., 1884, p. 24, pl. 3, fig. 3. ? Upogon rosenii Fischer, Jahrb. Hamb. Anst., vol. 2, 1885, p. 66. Mozambique.

Ambassis natalensis Gilchrist and Thompson, Trans. South Afr. Phil. Soc., vol. 16, 1905–11, p. 148. Durban Harbor, Durban; Natal.

Priopus burmeisteri (non Bleeker) Fowler, Copeia, No. 58, June 18, 1918, p. 63 (Philippines).

2663

Inyxus (Neomyxus) sclateri Steindachner, Sitzs. Ber. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 78, pt. 1, p. 384, 1878 (1879) (type locality, Kingsmill Islands, Hawaiian Islands).

Inyxus pacificus Steindachner, Denks. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 70, p. 500, 1901 (type locality, Laysan Island). — Jordan and Evermann, Bull. Bur. Fisher., vol. 23, pt. 1, 1903 (1905) p. 141 (reference).

Chaenomugil nauticus Bryan and Herre, Occas. Pap. Bishop Mus., vol. 2, no. 1, p. 127, 1902 (1903) (type locality, Marcus Island). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 218, 1905 (1906) (reference).

Apogon commersonii Guichenot, Mém. Soc. Sci. Cherbourg, ser. 2, vol. 2, 1866, p. 145 (Madagascar).

Ambassis commersoni Bleeker, Atlas Ichth. Ind. Néerl., vol. 8, 1876-77, p. 136, pl. (74) 552, fig. 1 (not 5 as stated in text) (Sumatra, Nias, Singapore, Java, Celebes, Amboina, Philippines). — Day, Fauna Brit. India, vol. 1, 1889, p. 488. — Pellegrin, Bull. Mus. Hist. Nat. Paris, vol. 13, 1907, p. 204 (Amilahy River at Tongobory, Madagascar). — Beaufort, Bijdr. Dierk., Amsterdam, 1913, p. 117 (Kajeli, Buru). — Pellegrin, Bull. Soc. Zool. France, vol. 39, 1914, p. 224 (Marambo and Fort Dauphin, Madagascar). — Barnard, Ann. South Afr. Mus., vol. 21, 1927, p. 643 (Natal coast).

Ambassis commersoni Bleeker, Verslag. Akad. Amsterdam, ser. 2, vol. 12, 1878, p. 192 (Mabare, East Madagascar).

2664

Mugil cephalus (not Linnaeus) Veale, Occas. Pap. Bishop Mus., vol. 6, no. 1, p. 17, 1906 (Nukuhiva, Marquesas Islands).

? Chaenomugil proboscideus (not Günther) Borodin, Bull. Vanderbilt Marine Mus., vol. 1, art. 2, p. 49, 1903 (Lindangan, Philippines).

rakers 8 + 22, slender, lanceolate, $1\frac{3}{5}$ in eye; gill filaments $\frac{1}{2}$ long as gill rakers.

Scales 25 to 27 in lateral line to caudal base (sometimes 12, 14 or 12, 15) and 4 or 5 more on latter; 5 scales above lateral line, 6 below, 16 to 20 predorsal forming median keel to posterior interorbital, 2 rows on cheeks and none on preopercle flange; caudal covered with small scales basally; dorsal and anal each with well marked basal scaly sheath. Scales with 5 to 7 basal, radiating, marginal striae; circuli moderately fine.

D. I, VII, I, 9, I. second erect spine $1\frac{1}{5}$ to $1\frac{1}{3}$ in total head length, first ray $1\frac{7}{8}$ to 2; A. III, 10, I, third spine $1\frac{2}{3}$ to $1\frac{4}{5}$; caudal $2\frac{2}{3}$ to $2\frac{4}{5}$ in

Depth 3 7/8 to 4 1/2; head 3 7/8 to 4 1/5, ~~hea~~ width 1 1/2 to 1 3/5. Snout 2 3/4 to 3 1/4 in head; eye 3 1/4 to 4 4/5, 1 1/2 to 1 3/4 in snout, 2 1/2 to 2 3/5 in interorbital; maxillary concealed, length 3 1/6 to 3 1/3 in head; upper part of upper lip very thick; lower edge of each lip covered with rather strong papillae or weak pectinate teeth; interorbital 2 to 2 7/8, convex.

Gill rakers 2+2+36, slender, lanceolate, little less than gill filaments, which 1 2/3 in eye.

Scales 37/48 to 48 in lateral series to caudal base; 18/2 to 15 transversely, 21 to 28 predorsal. Scales with 4 to 6 basal radiating striae and 3 to 5 incomplete accessories; circuli fine.

65. Port Langcan, Palawan Island.

April 8, 1909. Length 77 mm.

14471, 23100, 23101. Port Palapag.

June 2, 1909. Length 71 to 92 mm. Male with buccal ova.

1 example. Port Palapag. June 3, 1909. Length 74 mm. Male with buccal ova.

21003. Pujada Bay, Mindanao Island.

May 15, 1908. Length 62 mm.

23558. Rapu-rapu Island. June 22, 1909. Length 44 mm.

1 example. Rasa Island, Mantaquin Bay, Palawan. April 1, 1909. Length 74 mm. Male with buccal ova.

23046, 23047, 23071, 23073. Reef south lagoon, Tumindao Island, Sulu Archipelago. February 26, 1908. Length 32 to 85 mm.

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D. IV–I, 8 or I, 9, first dorsal spine 2 to 2 1/5 in head, first branched ray 2 to 2 1/5; A. III, 10 or 9, first branched ray 2 to 2 1/8 ~~behind~~ ~~forked~~; caudal 1 1/8 to 1, emarginate; least depth of caudal peduncle 2 1/3 to 2 2/5 in head; pectoral 1 1/5 to 1 2/5, rays I, 13; ventral rays I, 5, fin 1 7/8 to 2 in head.

Dull olivaceous above, with silvery reflections, lower surfaces whitish. Top of head and snout brown. Opercle brownish. Dorsal, caudal and pectoral dusky, last darkest; other fins pale.

3 examples. Opol, Mindanao.
August 4, 1909. Length 75 to 104 mm.

23834 to 23840. Pandanon Island.
March 23, 1909. Length 55 to 79 mm.
Male with buccal pva.

10537. Polloc, Mindanao. May 22, 1908.
Length 90 mm.

23058 and 23059. Port Ciego, Balabac.
January 3, 1909. Length 80 to 82 mm.

2 examples. Port Barakacan, Marinduque.
February 23, 1909. Length 40 to 44 mm.

1 example. Port Galera, Mindoro.
June 9, 1908. Length 31 mm.

1 example. Port Jamelo, Luzon.
July 13, 1908. Length 46 mm.

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A. h. S. P., two examples. Pago Pago, Samoa. 1917. Captain C. F. Silvester. Length 73 mm., caudal damaged.

24078. Alibijaban Island, Ragay Gulf.
March 6, 1909. Length 60 mm.

9292 and 23439. Biri Channel.
June 1, 1909. Length 95 to 106 mm.

23467 and 23765. Biri Channel.
June 2, 1909. Length 71 to 82 mm.
Male with buccal ova.

23060. Bolalo Bay, Palawan Island.
December 21, 1908. 8 examples. Length 45 to 80 mm.

16777. Busin Harbor, Burias Island.
March 7, 1909. Length 82 mm.

19443 and 19444. Cagayan, Jolo.
January 8, 1909. Length 71 to 76 mm.

14247 and 14248. Candaraman Island, Balabac. January 4, 1909. Length 64 to 84 mm.

2668

Inyxus superficialis Klunzinger

Inyxus superficialis Klunzinger, Verh. zool. bot. Gesell. Wien, vol. 20, p. 831, 1870 (type locality, Red Sea). — Mohr, Zool. Jahrb., vol. 54, p. 191, fig. 12, 1927 (types).

Depth 3 2/5; head 3 1/2. Snout 4 in head; eye 3, without adipose lids, greater than snout; mouth cleft not quite reaching front eye edge; interorbital moderately low; prorbital without notch along front edge, lower edge denticulate.

Scales 40 to 44 in lateral line; 13 or 14 transversely, 18 predorsal. Scales cycloid. Cheek and anal base scaly.

(Baie de Along, Tonkin).

Chrysophrys calamara Jouan, Mém. Soc. Sci. Nat. Cherbourg, series 2, vol. 3, 1868, p. 261 (Hong Kong).

Pagrus berda var. calamara Day, Fishes of India, pt. 1, 1876, p. 140, pl. 35, fig. 2.

Pagrus calamara Bleeker, Nederland. Tydschr. Dierk., vol. 4, 1874, p. 117 (China). — Evermann and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 31 (Bulan). — Seale, Philippine Journ. Sci., vol. 5, No. 4, Oct. 1910, p. 277 (Sandakan).

Chrysophrys vagus Peters, Monatsb. Akad. Wiss. Berlin, 1852, p. 681. Mozambique; Reise Mossambique, Fische, vol. 4, 1868, p. 11, pl. 2, fig. 1 (type [illegible]). 1/2

Martens, Reise Ost. Afrika Decken, vol. 3, pt. 1, 1869, p. 141 (Zambezi and Licuare Rivers). 1/2

Boulenger, Cat. Fresh Water Fishes Africa, vol. 3, 1915, p. 132, fig. 96 (on Peters). 1/2 — Thompson, Marine Biolog. Rep.

D. IV – 8 or 9 (apparently 11 on figure), first spine 2 3/4 in head; A. II, 9 (II, 10 on figure), second spine 3 1/8; least depth of caudal peduncle 3; pectoral 1/3, rays 14; ventral rays I, 5, fin 2 1/3.

Violet brown. Lateral bright silvery sheen, with golden yellow tinge. Fins hyaline, with dark dots. Length 31 mm. (Mohr.)

Red Sea. According to Mohr the types from Kosseir.

Carl 29

Upupa berda Forskål

Upupa berda Forskål, descript. Animal., 1775, p. 32, Arabia. 1/m Gmelin, Syst. Nat. vol. 1, Linnaeus, 1789, p. 1276 (Red Sea). 1/m Wolbaum, Fortschr. Fisc., vol. 3, 1793, p. 292 (on Forskål). 1/m Schneider, Syst. Ichth. Bloch, 1801, p. 278 (Red Sea). 1/m Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 31, 35 (Arabia). 1/m Klunzinger, Verhandel. zool. bot. Gesell. Wien, vol. 20, 1870, p. 758 (Kosair, Red Sea); Fische Roth. Meer., 1884, p. 44, pl. 13, fig. 1. 1/m Jordan and Evermann, Proc. U. S. Nat. Mus., vol. 25, 1902, p. 350 (Formosa). 1/m Steindachner, Denkschr. Akad. Wiss. Wien, Math.-Naturw. Classe, vol. 71, pt. 1, 1902, p. 135 (Red Sea, South Arabia). 1/m Jordan and Richardson, Mem. Carnegie Mus., vol. 4, No. 1, Aug. 28, 1907, p. 187 (on Jordan and Evermann). 1/m Seale, Philippine Journ. Sci., vol. 7, No. 1, 1914, p. 67 (Hong Kong). 1/m Fowler, Copeia, No. 58,

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Inyxus leucisceus Günther

Inyxus leucisceus Günther, Proc. Zool. Soc. London, p. 666, pl. 65, fig. A, 1871 (type locality, ~~Rarotonga~~ Rarotonga, Cook Islands); Journ. Mus. Godeffroy, vol. 7, pt. 15, p. 220, pl. 121, fig. C, 1881 (Rarotonga; Raiatea; Tahiti; Loyalty Islands). — Waite, Mem. Austral. Mus., vol. 3, p. 191, 1897 (Funafuti). — Seale, Occas. Pap. Bishop Mus., vol. 6, no. 1, p. 15, 1906 (Makatea). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 218, 1905 (1906) (reference). — Lohrer, Zool. Jahrb. Jena, vol. 54, p. 194, 1927 (copied). — Fowler, Bull. Bishop Mus., no. 38, p. 10, 1927 (Tongareva); Mem. Bishop Mus., vol. 10, p. 127, 1928 (Makatea).

Red Sea, East Africa, Zanzibar, Mozambique,
Mauritius, Seychelles, India, Ceylon,
East Indies, Philippines, Japan, Queensland,
Melanesia, Micronesia, Polynesia.
Our series of specimens all show
rather large spots, variably present
on the fins and sometimes as
short vertical bars as those on
the flanks in the nominal
Plectropoma fasciatiferum.

depth $3\frac{3}{4}$; head $4\frac{2}{5}$. Snout $4\frac{3}{5}$ in head from snout tip; eye $3\frac{7}{8}$, greater than snout, without adipose lids; maxillary concealed, reaches $\frac{3}{4}$ in snout, length about 5 in head; interorbital moderately high; front preorbital edge straight, lower edge denticulated.

Scales 47 in lateral series; 14 transversely. Pectoral without axillary scale.

D. $\overline{\text{IV}}$ – $\overline{\text{I}}$, 8; first spine $2\frac{1}{10}$ in total head length, first branched ray $1\frac{7}{8}$; A. $\overline{\overline{\text{III}}}$, 10, first branched ray $1\frac{1}{2}$; caudal 1, slightly or moderately emarginate behind; pectoral $1\frac{1}{8}$, rays $\overline{\overline{\text{I}}}$, 10; ventral fin $1\frac{1}{2}$ in total head length.

Coloration uniform. Length 253 mm.
(Günther.)

Melanesia, Polynesia.

Chrysophrys berda Valenciennes, Hist. Nat. Poiss., vol. 6, 1830, p. 113 (Pondicherry). 1/m Richardson, Ichth. China Japan, 1846, p. 240 (Canton). 1/m Peters, Archiv Naturgesch., 1855, pt. 1, p. 243 (Mozambique). 1/m Günther, Cat. Fishes British Mus., vol. 1, 1859, p. 494 (compiled). 1/m Day, Fishes of India, pt. 1, 1875, p. 140, pl. 34, fig. 2 (Vind, Madras Presidency, Malabar); Supplement 1888, p. 788; Fauna British India, Fishes, vol. 2, 1889, p. 44. 1/m Thurston, Pearl Fisher. Gulf of Manaar, 1890, p. 92 (Tuticorin). 1/m Jugmayer, Abhandl. Kon. Bayer. Akad. Wiss., math.-physik. Klasse, vol. 26, pt. 6, 1913, p. 11 (Mekran). 1/m Pearson, Ceylon Administrat. Rep., 1915-18, p. F14.

Chrysophrys berda Rüppell, Neue Wirbelth. Fische, 1835, p. 120, pl. 27, fig. 1 (Red Sea).

Pagrus berda Barnard, Trans. South African Phil., vol. 21, pt. 2, 1927, p. 703 (Natal, Zululand coast, Delagoa Bay, Zambezi River mouth).

Inyxus elongatus (Günther

Inyxus elongatus Günther, Cat. Fish. Brit. Mus., vol. 3, p. 466, 1861 (type locality, Hobson's Bay, Australia, Port Jackson). — Kner, Reise Novara, Fische, p. 230, 1865 (Sydney). — Martens, Preuss. Exped. Ost Asien, vol. 1, p. 395, 1876 (Singapore). — Castelnau, Proc. Linn. Soc. New South Wales, vol. 3, p. (353), 1879 (Port Jackson). — Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 33, 1880 (Mary River, Tiaro). — Macleay, Proc. Linn. Soc. New South Wales, vol. 4, p. 426, 1880 (Port Jackson); vol. 5, pt. 2, p. 49, 1881 (reference). — Ogilby, Mem. Austral. Mus., vol. 2, p. 63, 1889 (Lord Howe Island); Proc. Roy. Edible Fishes New South Wales, p. 128, pl. 33, 1893.

Depth 3 1/6 to 3 2/3; head 2 7/8 to 3, width 1 3/5 to 2 1/2. Snout 2 4/5 to 3 1/3 in head from snout tip; eye 5 7/8 to 6, 1 3/4 to 2 in snout, 1 1/8 to 1 1/4 in interorbital; maxillary reaches half way in eye or to hind eye edge, expansion 1 1/4 to 1 1/2 in eye, length 2 1/8 to 2 1/6 in head from snout tip; teeth in narrow bands in jaws, with upper outer series little larger; pair of canines in front of each jaw and 2 lateral canines on each mandibular ramus; narrow band of fine teeth on vomer and on each palatine; interorbital 5 to 5 1/5, level; hind preopercle edge entire, with 3 to 4 antrorse spines on lower edge; opercular spines 3, median little lower. Gill rakers 7 + 13, lanceolate, 1/2 in eye; 5 above and 8 below rudimentary.

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Soc. Tasmania, p. , 1896 (1897) (South Queensland). ✓ — York,

— Waite, Prelim. Rep. Thetis, 1898, p. 61, pl. 12. — Stead, Edible Fishes New South Wales, p. 45, pl. 14, 1908.

— Waite, Rec. Austral. Mus., vol. 5, pt. 3, p. 197, March 11, 1904 (reference); Trans. Roy. Soc. South Australia, vol. 40, p. 454, pl. 44, 1916). —

Mohr, Zool. Jahrb. Jena, vol. 54, p. 193, 1927 (copied). — Mc Culloch and Whitley, Mem. Queensland Mus., vol. 8, pt. 2, p. 141, July 7, 1925 (reference). — Mc Culloch, — Roughley, Fishes of Australia, p. 43, pl. 9, 1916. — Waite, Rec. South Austral. Mus., vol. 2, no. 1, p. 84, fig. 127, April 23, 1921 (reference). Mem. Austral. Mus., vol. 5, pt. 1, p. 118, June 29, 1929 (reference).

— Mohr, Zool. Jahrb. Jena, vol. 54, p. 193, 1927 (copied).

Soc. Tasmania, p. , 1896 (1897) (South Queensland). ✓ — York, Prelim. Rep. Mar. Dep. Queensland, p. — , 1902-03 (Moreton Bay). — Waite, Rec. Austral. Mus., vol. 5, pt. 3, p. 197, March 11, 1904 (reference); Trans. Roy. Soc. South Australia, vol. 40, p. 454, pl. 44, 1916). — Mohr, Zool. Jahrb. Jena, vol. 54, p. 193, 1927 (copied). — Mc Culloch and Whitley, Mem. Queensland Mus., vol. 8, pt. 2, p. 141, July 7, 1925 (reference). — Mc Culloch, — Roughley, Fishes of Australia, p. 43, pl. 9, 1916. — Waite, Rec. South Austral. Mus., vol. 2, no. 1, p. 84, fig. 127, April 23, 1921 (reference). Mem. Austral. Mus., vol. 5, pt. 1, p. 118, June 29, 1929 (reference).

— Mohr, Zool. Jahrb. Jena, vol. 54, p. 193, 1927 (copied).

Schmeltz, Cat. Mus. Godeffroy, No. 7, 1879, p. 41 (Corea Strait).

Scales 103 to 105 in lateral line to caudal base and 18 to 20 more on latter; tubes 83 to 86 in lateral line to caudal base and 6 to 8 more on latter; 17 or 18 scales above, 40 to 43 below; 42 to 44 predorsal forward to occiput; 26 to 28 rows across cheek to preopercle angle; body scales without small basal accessory scales; maxillary expansion with patch of small scales in 2 to 6 transverse series; snout, preorbital and interorbital naked; fins basally with fine scales. Scales with 2 to 5 basal radiating striae (small examples with 7 to 12 apical denticles with 4 to 7 transverse series) and circuli fine.

D. VII, I, 10, I or I, 11, I, third spine 3 1/4 to 4 in total head length, third

Mugil crenidens Kner, Reise Novara, Fische, p. 229, pl. 9, fig. 4, 1865 (type locality, Australia).

Mugil crenidens Steindachner, Sitzs. Ber. Akad. Wiss. Wien, math.-naturw. Kl., vol. 53, pt. 1, p. 461, 1866 (Port Jackson). — Macleay, Proc. Linn. Soc. New South Wales, vol. 4, p. 424, 1880 (copied); vol. 5, pt. 2, p. 48, 1881 (reference).

Cestrus norfolcensis Ogilby, Proc. Linn. Soc. New South Wales, vol. 22, p. 80, 1897 (type locality, Norfolk Island).

ray 2 1/5 to 2 3/5; A. III, I, 7, I, third spine 4 3/5 to 5, first ray 2 to 2 1/5; caudal 1 1/5 to 1 1/2, concave behind; least depth of caudal peduncle 2 2/5 to 2 3/4; pectoral 1 7/8 to 2; ventral 1 3/4 to 1 7/8.

Light brown, usually little paler below. Back and sides above with pale blue dark edged spots, some on head and flanks elongated and bar like. Iris brown. Some small blue spots on bases of soft dorsal, anal and caudal. Paired fins pale brown, unspotted.

depth 4; head 3 7/8 to 4. Snout 3 1/2 to 4 1/5 in head; eye 4 4/5 to 6, 1 1/5 to 1 1/3 in snout, 1 2/5 to 1 3/5 in interorbital, without adipose lids; maxillary reaches 7/8 to eye, 4 in head; lips thin; single series of small, rarely tricuspid teeth in upper jaw, lower fringed with minute cilia; narrow transverse band of small teeth on vomer, smaller patch on each palatine; interorbital low, slightly convex; lower preorbital edge denticulate.

Scales 43 to 46 in lateral series; 15 transversely, 17 or 18 predorsal to occiput. No enlarged pectoral axillary scale.

D. IV — I, 8, second spine 1 4/5 in head, first branched ray 2;

Papua). 1/m Boulenger, Proc. Zool. Soc. London, 1887, p. 659 (Muscat). 1/m Vaillant, Hist. Nat. Madagascar, Poiss., 1891, p. 495, pl. 25a, fig. 2. 1/m Ebert, Cat. Fauna Filipinas, vol. 1, 1895, p. 484 (Luzon, Manila, Navotas). 1/m Ishikawa and Matsuura, Prelim. Cat. Fishes Mus. Tokyo, 1897, p. 53. 1/m Zugmayer, Abhandl. Kon. Bayer. Akad. Wiss., Math.-phys. Klasse, vol. 26, pt. 6, 1913, p. 11 (Mekran and Oman).

Chrysophrys calamara Valenciennes, Hist. Nat. Poiss., vol. 6, 1830, p. 117. Java; Malabar. 1/m Cantor, Journ. Asiatic Soc. Bengal, vol. 18, pt. 2, 1849, p. 1029 (Sea of Penang). 1/m Günther, Cat. Fishes British Mus., vol. 1, 1859, p. 493 (copied). 1/m Day, Fishes of Malabar, 1865, p. 30. 1/m Ebert, Cat. Fauna Filipinas, vol. 1, 1895, p. 484 (Batangas, Luzon, Manila, Nasugbu). 1/m Pellegrin, Bull. Soc. Zool. France, vol. 30, 1905, p. 84

A. III, 9, first branched ray 1 7/8; least depth of caudal peduncle 2 4/5; pectoral 1 2/5, rays 16; ventral rays I, 5, fin 2 in head; caudal 3 1/3 in rest of fish, emarginate behind.

Light reddish brown or dark green above. Sides pink. Lower surfaces silvery. Small black axillary pectoral spot. Length 330 mm. (Ogilby.)

Western Australia, South Australia, Victoria, New South Wales, Queensland, Norfolk Island, Lord Howe Island.

Sparus hasta Schneider, Syst. Ichth. Bloch, 1801, p. 275. Coromandel. 1/m

Bleeker, Faun. Madagascar, Poiss. et Van Dam, 1875, p. 92 (reference); Atlas Ichth. Ind. Néerland., vol. 8, 1876-77, p. 108, pl. (67) 345, fig. 3 (Sumatra, Pinang, Singapore, Bintang, Java, Madura, Bali, Celebes, Philippines?)

Chrysophrys hasta Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 490 (part; Ceylon, Bay of Bengal, Madras). 1/m Kner, Reise Novara, Fische, 1865, p. 88 (Java; Manila). 1/m Day, Fishes of Malabar, 1865, p. 29. 1/m Schmeltz, Cat. Mus. Godeffroy, no. 4, 1869, p. 14 (East Indies); no. 5, 1874, p. 24 (Corea Straits). 1/m Martens, Preuss. Exped. Ost Asien, 1876, p. 388 (Yokohama). 1/m Károli, Termesz. Füzetek, Budapest, vol. 5, 1881, p. 157 (Canton). 1/m Macleay, Proc. Linn. Soc. New South Wales, vol. 8, 1883, p. 265 (Gulf of

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Myxus analis Kner

Myxus analis Kner, Reise Novara, Fische, p. 231, pl. 10, fig. 1, 1865 (type locality, Shanghai). — Klunzinger, Verh. Zool. Bot. Ges. Wien, 1870, p. 631, 1870 (type). — Alexandrids Bleeker, Nederl. Tijds. Dierk., vol. 4, p. 143, 1873 (1874) (China). — Reeves, Journ. Pan Pac. Res. Inst., vol. 3, 2, p. 8, 1927 (reference). — Chu, Biol. Bull. St. John's Univ., no. 1, p. 105, January 1931 (reference).

a| f^2. Body more slender, depth 2 2/5 to 2 2/3.

f. Uniformly light or silvery, without black on fins. burdensis

f^2. Second spinous dorsal membrane variable blackish with age. gymnocephalus

b. ^{3} Predorsal scales 15 to 17; lateral line complete; depth 2 3/4 to 3; second spinous dorsal membrane dusky to black terminally. batjanensis

aa. ^{2} Whitleyia new subgenus. Scales about 40 to 46 in lateral line to caudal base; cheek with 7 rows of scales; second erect dorsal and anal spines enlarged and prominent, former higher than soft dorsal. wolfii

Type Pomacesis wolfii Bleeker.

For Mr. Gilbert P. Whitley, Zoologist of the Australian Museum.

Depth 4 1/4; head 3 1/2. Snout 4 1/5 in head from snout tip; eye 4 1/5, subequal with snout, 1 1/2 in interorbital; maxillary not quite reaching eye, length 3 4/5 in head from snout tip; row of fine pointed teeth in upper jaw, short band on vomer and palatines; interorbital low, flat.

Scales 50 in lateral series; 11 or 12 transversely; 3 rows on cheeks.

D. IV–I, 9, first spine 2 in total head, first branched ray 2 1/4; A. III, 11 or 12, first branched ray 2 1/6; caudal 1, deeply emarginate; least depth of caudal peduncle 3 2/5; pectoral 1 1/4; ventral 1 7/8.

Back and upper sides gray

Anal with membranes of spinous fin and basal half of membranes of soft fin deep brown. Caudal little deeper brown than body. Paired fins rather pale, with dusky blotch within origin and anal. Ventral with little dusky terminally.

Red Sea, Arabia, Mozambique, Delagoa Bay, Natal, India, Ceylon, Penang, East Indies, Philippines, Tonkin, China, Formosa, Japan, Melanesia.

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brown, with blackish streaks longitudinally along each scale row. Side and belly tinged silvery. Fins clear! dark blotch in axil. Length 192 mm.

(Kner.

China.

cheeks. Scales with 13 to 15 basal radiating striae, large scales sometimes with many as 50 very weak, minute, short, apical denticles; circuli very fine.

D. XI, 11, I, fourth spine 2 1/5 to 2 4/5 in head, second ray 2 3/4 to 3 1/8; A. III, 8, I, second spine 1 7/8 to 2 1/5, first ray 2 2/5 to 2 2/3, least depth of caudal peduncle 2 2/5 to 2 2/3; caudal 1 1/8 to 1 1/4, deeply forked, ventral 1 1/3 to 1 1/2; ventral 2 2/5 to 2 1/2 in combined head and body to caudal base.

Dull olive brown above, below pale to whitish and whole body with silvery and brassy reflections. Iris pale brownish, with reddish tints. Fins brown, membranes of spinous dorsal darker, also longitudinal band on soft dorsal, though only on membranes.

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Genus Agonostomus Bennett

Agonostomus Bennett, Proc. Zool. Soc. London, 1831, p. 166. (Type Agonostomus telfairii Bennett, monotypic.)

Agonostoma (Günther, Cat. Fish. Brit. Mus., vol. 3, p. 461, 1861. (Type Agonostomus telfairii Bennett.)

Cestraeus Valenciennes, Hist. Nat. Poiss., vol. 11, p. 157, 1836. (Type Cestraeus plicatilis Valenciennes, designated by Jordan, Genera of Fishes, pt. 2, p. 185, 1919.) (Not Cestreus Klein.)

Dajaus Valenciennes, Hist. Nat. Poiss., vol. 11, p. 164, 1836. (Type Mesteä monticola ~~Griffiths~~ ~~Valenciennes~~, monotypic.)

Hestes Valenciennes, Hist. Nat. Poiss., vol. 11, p. 167. (Type Hestes cyprinoides Valenciennes = Agonostomus telfairii Bennett, designated by Jordan, Genera of Fishes, pt. 2, p. 185, 1919.

Agonostomyxus Macdonald, Proc. Zool. Soc. London, 1869, p. 38. (Type Agonostomyxus loa-loa Macdonald = Cestraeus plicatilis Valenciennes, monotypic.)

Aeschrichthys Macleay, Proc. Linn. Soc. New South Wales, vol. , p. 52, 1883. (Type Aeschrichthys goldiei Macleay, monotypic.)

Neomugil Vaillant, Bull. Soc. Philomath. Paris, ser. 8, vol. 4, p. 72, 1894. (Type Neomugil diqueti Vaillant.

Body elongate, compressed.
Head moderate, rather conic.
Snout rather long or pointed,
at least in profile. Eye small,
without adipose lids, little
advanced. Mouth cleft laterally,
not transverse, maxillary rather
long, reaches below eye.
Upper lip thick, fleshy. Mandible
included in upper jaw, edge
rounded by lower, thick,
coriaceous lip and on each
side with cushion-like oval
prominence with many closely
set membranaceous lamellae.
Narrow band of very small,
conic, pointed teeth on each
premaxillary, sometimes uniserial
along mandible in young. Vomer
with or without rounded

Scales 53 to 60 in lateral line to caudal base and 10 to 35 more on latter; 7 to 10 above, 13 to 17 below; 1 to 46 predorsal, of which 19 to 25 to occiput, extend forward opposite front eye edge; 6 to 8 rows on cheek to preopercle ridge, none on flange. Scales with 7 to 9 basal radiating striae, 65 to 115 short obtuse apical denticles with 1 to 20 transverse series of basal elements; circuli very fine.

D. XI or XII, 14, I, fourth spine 1 9/10 to 3 in head, first ray 2 4/5 to 3 1/4; A. III, 8, I, third spine 2 1/3 to 3 1/8, first ray 2 7/8 to 3 1/5; caudal 1 to 1 1/5, deeply forked; least depth of caudal peduncle 2 3/4 to 3 1/4; ventral 1 1/4 to 2 2/5; pectoral 2 2/5 to 3 1/4 in combined head and body to caudal base.

Light brown generally, with mauve to gray tints on head and back, which

patch of teeth on both sides. Interorbital convex. Preorbital not or but slightly notched. Scales rather small, 36 to 45 in lateral series. Soft vertical fins more or less scaly basally. First dorsal with 4 spines, second dorsal with spine and 7 or 8 rays. Anal with 3 spines and 8 to 10 rays. Caudal emarginate. Pectoral placed rather high, or level with eye, rays 16 to 20. Ventral inserted behind pectoral base, with spine and 5 rays.

Fresh water mullets living in the streams of mountainous regions in tropical countries.

Pagrus ruber (Döderlein) Steindachner and Döderlein, Denkschr. Akad. Wiss. Wien, math.-naturw. Klasse, vol. 48, pt. 1, 1883 (1884), p. 20. Tokio.

Pagrus arthurius Jordan and Starks, Proc. U. S. Nat. Mus., vol. 31, 1901, p. 517. Port Arthur, Manchuria.

Depth 1 9/10 to 2 4/5; head 2 7/8 to 3 1/4, width 2 to 2 1/2. Snout 2 to 2 1/2 in head; eye 3 1/3 to 4, 1 2/5 to 1 7/8 in snout, 1 1/8 to 1 1/5 in interorbital; maxillary reaches 4/5 to or 1/4 in eye, expansion 2 to 2 1/4 in eye, length 2 3/5 to 2 4/5 in head; 4 upper conic front canines, 5 or 6 lower, 2 or 3 upper rows of molars and 2 rows below each side; interorbital 3 3/5 to 4, convexly elevated; eye 1 1/3 in preorbital width to slightly greater with age, which 2 7/8 to 4 3/5 in head; preopercle edge entire. Gill rakers 2 to 7 + 1 or 10, low points, which 1/4 to 1/2 of gill filaments, last 1/3 to 2/3 in eye.

The nominal Agnostoma darwiniense
Macleay 1870, was afterwards
corrected by the same author in
1881 to belong in Eleotris and
is admitted to Ophiocara by
Mc Culloch in 1929.

Chrysophrys unicolor (part) Quoy and Gaimard, Voy. Uranie, Zool., 1824, p. 227 (China Sea).

Pagrus unicolor Richardson, Ichth. China Japan, 1846, p. 242 (Canton; Hong Kong). 1/m Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 468 (Hong Kong). 1/m Kner, Reise Novara, Fische, 1865, p. 85 (Hong Kong). 1/m Steindachner, Sitz. Ber. Akad. Wiss. Wien, Math.-Naturw. Klasse, vol. 61, pt. 1, 1870, p. 625 (China). 1/m Martens v. Preuss. Exped. Ost Asien, 1876, p. 387 (Yeddo). 1/m Károli, Termesz. Füzetek, Budapest, vol. 5, 1881, p. 157 (Yokohama). 1/2m Regan, Ann. Mag. Nat. Hist., series 7, vol. 15, 1905, p. 20 (Inland Sea of Japan).

Pagrus chinensis Steindachner, Sitz. Ber. Akad. Wiss. Wien, Math.-Naturw. Klasse, vol. 61, pt. 1, 1870, p. 625. China.

Sparisoma unicolor Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1900, p. 502 (Hawaiian example).

Analysis of Species

a.¹ Lateral scales 37 to 40; 15 predorsal scales; anal rays 9 or 10. trimaculatus.

a.² Lateral scales 40 to 45.

b.¹ Two patches of teeth on vomer; anal rays 9 or 10.

c.¹ Pectoral reaches below first dorsal origin; snout end pointed.

d.¹ Pectoral long as head; lateral scales 36 to 41. goldiei.

d.² Pectoral little less than head; lateral scales 42 to 45. oxyrhynchus.

c.² Pectoral not reaching first dorsal; scales 40 to 45. telfairii.

b.² No teeth on vomer; first dorsal origin far behind end of pectoral; anal rays 8 or 9. plicatilis.

a.³ Lateral scales 52 to 56; anal rays 11. forsteri.

2686

Agonostomus trimaculatus (Klunzinger)

Mugil trimaculatus Klunzinger, Verh. Zool. Bot. Gesell. Wien, vol. 20, p. 832, 1870 (type locality, Red Sea). — Fowler, Mem. Bishop Mus., vol. 10, p. 127, 1928 (compiled).

Agonostoma trimaculatum Mohr, Zool. Jahrbücher, Jena, vol. 54, p. 201 [illegible] (south coast New Pommerania).

(p. 179, figs. 2a–b, 1927 (types, said to be from Kosseir),

5 examples. Bagarong River, 4 miles up, Tablayan Bay, Mindoro. December 13, 1908. Length 40 & 50 mm.

6 examples. Cabugo Bay, Catanduanes Island, east coast Luzon. June 9, 1909. Length 70 to 86 mm.

19 examples. Camiguin Island, Mahinog, between Leyte and Mindanao. August 3, 1909. Length 31 to 63 mm.

65 examples. Cannakala Bay, Ragay Gulf. March 11, 1909. Length 53 to 87 mm.

21 examples. Chase Head, Endeavor Strait, Palawan. December 22, 1908. Length 50 to 76 mm.

19709 and 19710. Davao, Mindanao. May 16, 1908. Length 64 to 81 mm. 7 examples.

19757. Jolo market, Jolo. February 12, 1908. Length 92 mm.

19356 & 19356. Mahinog, Camiguin Island. August 3, 1909. Length 47 to 63 mm.

depth 3 3/4; head 3, width
1 1/2. Snout 4 1/2 in head; eye
2 1/3; greater than snout; largely
facing below; mouth cleft
reaches front eye edge (shown
in figure B nearly to middle
of eye); upper lip small,
mostly with fine teeth, lower
lip mostly without teeth;
interorbital low; lower preorbital
edge strongly toothed, front edge
scarcely notched.

Scales 37 to 40 in lateral
series; 11 or 12 transversely. 15
predorsal, 7 or 8 interdorsal.
First dorsal, pectoral and ventral
each with pointed scaly flap.
Anal base scaly.

D. IV — 8 or 9, second spine
3 1/8 in head; soft fin height
2 1/3; A. II, 9 or 10, second spine

Genus Neomyxus Steindachner

Neomyxus Steindachner, Sitzg. Ber. Akad. Wiss. Wien, math.-naturw. Kl., vol. 78, pp. 77, 384, 1878.

(Type Myxus (Neomyxus) balteri Steindachner, monotypic.)

2688

4, fin height about like second dorsal; least depth of caudal peduncle 3; pectoral $1\frac{7}{8}$; ventral 2, rays $\underline{\underline{I}}$, 5; caudal damaged.

Back brown, with silvery sheen, sides and belly silvery. Length 16 mm. (Mohr.)

Red Sea, Melanesia.

According to Mohr the 3 whitish blotches, as one at the nape, second before dorsal and third under second dorsal, not now evident in type.

72683 U.S.N.M. Palaboean Ratoe, Wynkoop Bay, Java. Bryant and Palmer. October 1907. Length 106 mm.

75433 U.S.N.M. Wakanoura, Japan. Jordan and Snyder. Length 108 to 132 mm. 2 examples.

75434 U.S.N.M. Kobe, Japan. Jordan and Snyder. Length 185 mm.

85878 U.S.N.M. China. A. de C. Sowerby. Length 103 mm. Scales 49 in lateral line to caudal base and 6 more on latter. Upper molars posteriorly in 4 rows, lower in 3. Black spot at origin of lateral line.

97063 U.S.N.M. Shanghai. A. de C. Sowerby. June 1927. Length 94 to 195 mm. 4 examples.

53015 A.N.S.P. Bombay, India. Prof. F. Hallberg. 1924. Purchased. Length 235 mm.

2689

Agonostomus goldiei (Macleay)

Aeschrichthys goldiei Macleay, Proc. Linn. Soc. New South Wales, p. 52, figs. of head, 1883 (type locality, Goldie River, New Guinea). —

Jordan and Seale, Bull. Bur. Fisher, vol. 25, p. 218, 1905 (1906) (reference). — Jordan and Richardson, Bull. Bur. Fisher, vol. 27, p. 244, 1907 (1908) (Mindoro).

1 examples. Manila, Luzon, December 6, 1907. Length 55 mm.

14 examples. Manila Bay, December 9, 1907. Length 53 to 77 mm.

4 examples. Manila Harbor. December 30, 1907. Length 58 to 72 mm.

4 examples. Manila Harbor. January 13, 1908. Length 60 to 63 mm.

19502. Manila Market. December 12-18, 1908. Length 53 mm.

17362, 17563, 19428. Sorsogon market. March 12, 1909. Length 50 to 76 mm.

9 examples. Sandakan Bay, Borneo. March 2, 1908. Length 57 to 78 mm.

3 examples. Sandakan Market, Borneo. March 2, 1908. Length 60 to 77 mm.

Centraeus goldiei Weber and Beaufort, Nova Caledonia, Zool., vol. 2, pt. 1, p. 26, fig. 2, 1915 (Junior). — Weber and Beaufort, Fishes Indo-Austral. Archip., vol. 4, p. 262, figs. 68 and 69, 1922 (New Guinea). — Fowler, Mem. Bishop Mus., vol. 10, p. 128, 1928 (compiled).

pectoral 1 1/5 to 1 1/4; ventral 1 2/5 to 1 3/4.

Pale brown, scales on back and upper surfaces dusted with deep brown dots, those of upper back broadly so on margins. Sides and lower surfaces paler to whitish and bright silvery white sheen over sides of head. Median silvery white band from eye to caudal, in formaline specimens with narrow neutral dusky line ~~axil~~ from gill opening to caudal base medianly and most distinct on tail. Iris silvery white. Fins pale, verticals dusted with grayish, anal paler than others. Membrane between second and third erect dorsal spines blackish, ~~reproaching terminally~~.

Depth 3 to 3 1/4; head 4 1/5 to 4 1/4, width 1 1/5 to 1 1/2, snout 2 3/4 to 3 in head; eye 5 1/5 to 6, 2 to 2 1/4 in snout, 2 1/4 to 3 in interorbital; without adipose lids maxillary reaches 2/5 to 1/2 in eye, length 2 to 2 1/6 in head; upper lip rather broad, width 2 in eye; 2 series of fine or minute short teeth on each premaxillary and patch of small pointed teeth each side of vomer; interorbital 1 7/8 to 2 1/4 in head, broadly convex. Gill rakers 30+52, finely lanceolate, 1 4/5 in gill filaments, which equal eye.

Scales 40 to 42 in lateral series to caudal base; 15 transversely, predorsal 32 or 33, of which 20 forward until opposite hind eye edge. Vertical fins all more or less scaly basally, finer and smaller scales on paired fins basally.

Scales with 9 or 10 basal rather close set slightly radiating striae; 130 to 135 slender, minute apical denticles, with about 5 to 8 transverse series of basal elements; circuli very fine.

D. $\frac{IV}{=}$ — I, 7, $\frac{I}{=}$ or I, 8, $\frac{I}{=}$, first spine $1\frac{2}{3}$ to $1\frac{7}{8}$ in head, first branched ray $1\frac{3}{5}$ to $1\frac{3}{4}$; A. $\frac{III}{=}$, 9, $\frac{I}{=}$, third spine $2\frac{1}{3}$ to $2\frac{3}{4}$, second branched ray $1\frac{1}{5}$ to $1\frac{1}{4}$; least depth of caudal peduncle $1\frac{7}{8}$ to 2; ~~pectoral~~ ventral $1\frac{1}{5}$ to $1\frac{1}{4}$; caudal $3\frac{2}{3}$ to $3\frac{3}{4}$ in rest of fish, deeply forked; pectoral $4\frac{1}{8}$ to $4\frac{2}{3}$.

Back brown, lower and under surfaces whitish. Iris pale or light brown. Fins brownish, lower parts of pectoral and ventral pale.

7693

7216. Aparri market, Luzon. November 19, 1908. Length 300 mm.

A1272 to A1277. Ulei, Bouro Island, Dutch East Indies, fresh water. December 9, 1907. Length 236 to 330 mm.

Through variable in form and coloration, but intergrading forms frequent. Apparently the males are more slender than the females and usually without the filamentous dorsal spines. Most females have long dorsal spines and are without the black basal caudal spot.

19127. Beach at village near Chase Head, Endeavor Strait, Palawan Island. August 9, 1909. Length 28 to 46 mm. 13 examples.

6754. Beach at village near Chase Head. December 22, 1908. Length 30 mm. 6 examples. Biri Channel, east coast Luzon. June 2, 1909. Length 41 to 49 mm.

23712. Busin Harbor, Burias Island. March 8, 1909. Length 49 mm.

18512. Butauanan Island, east coast Luzon. June 13, 1909. Length 41 mm.

[1307.]
21 examples. Bolalo Bay, Palawan Island. December 21, 1908. Length 26 to 47 mm. Male with buccal ova.

<u>Agonostomus</u> <u>oxyrhynchus</u> (Valenciennes)

<u>Cestraeus</u> <u>oxyrhynchus</u> <u>Valenciennes</u>, Hist. nat. Poiss., vol. 11, p. , 1836 (type locality, fresh waters of Celebes).

<u>Cestraeus</u> <u>oxyrhynchos</u> <u>Bleeker</u>, Nat. Tijds. Ned. Indië, vol. 9, p. (284) 307, 1855 (Suwangan, Celebes); ~~vol. 9~~ p. 493 ~~[illegible]~~ (Amasing and Madawang Rivers, Batjan); Act. Soc. Sci. Ind. Néerl., vol. 3, no. 9, p. 2, 1857-58 (Padang); vol. 5, no. 8, p. 1, 1858-59 (Klabatdiatas, Celebes); vol. 8 (Sumatra 9), p. 2, 1860 (Benculen), p. 9 (Padang; Sawangan, Klabat-diatas; Labuha); Nat. Tijds. Ned. Indië, vol. 22, p. 65, 1860 (Benculen), p. 229 (Ruwata River, Ceram).

Mossambique, vol. 4, 1868, p. 10. —
Martens, Reise Ostafr. [in key] Flecken, vol. 3, pt. 1,
1869, p. 141 (Kilinani, Rolumbo River,
Manbika). — Klunzinger, Verh. zool. bot.
Gesell. Wien, vol. 20, 1870, p. 719 (Koseir,
Red Sea). — Day, Fishes of India, pt. 1,
1875, p. 52, pl. 15, fig. 3. — Jatzow and Lenz,
Abhandl. Senckenberg. Gesell., vol. 21,
1899, p. 499 (Marovoay, West Madagascar;
Kokotoni Reef, Zanzibar). — Sauvage, Hist. Nat. Madagascar, Poiss., 1891, p. 113,
pl. 41a, fig. 6. — Beaufort,
Bijdr. Dierk. Amsterdam, 1913, p. 113
(Kajeli, Buru). — Zugmayer, Abhandl.
Bayer. Akad. Wiss., vol. 26, pt. 6, 1913,
p. 10 (Mekran). — Boulenger, Cat. Fresh
Water Fishes Af., vol. 3, 1915, p. 112, fig.
85 (Zanzibar; Rovuma River; Dar es
Salaam, East Africa; Drilaby River,
Madagascar).

2695

Agonostoma oxyrhynchum Günther, Cat. Fish. Brit. Mus., vol. 3, p. 461, 1861 (copied). — Weber, Zool. Ergebn. Ned. Ost Ind., vol. 3, p. 451, 1894 (Celebes, Billiton, Batjan).

Agonostomus oxyrhynchus Bleeker, Verslag. Akad. Wet. Amsterdam, vol. 15, p. 21, 1863 (Hitu, Amboina).

Centropomus ambassis Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 252, 282. Seas and fresh waters of Mauritius and Reunion.

Ambassis ambassis Fowler, Proc. Acad. Nat. Sci. Phila., 1905, p. 500 (Baram, Borneo); 1925, p. 220 (Natal).

Ambassis commersonii Cuvier, Hist. Nat. Poiss., vol. 2, 1828, p. 176, pl. 25. Bourbon, Pondicherry, Mahé, Java. — Peters, Arch. Naturgesch., 1855, p. 235 (Mozambique). — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 223 (India, Amboyna, Philippines, Java, Port Essington, Australia). — Guichenot, Notes Ile Réunion, vol. 2, 1862, p. 23. — Kner, Reise Novara, Fische, 1865, p. 41 (Java). — Day, Fishes of Malabar, 1867, p. 15. — Peters, Reise

— Playfair, Fishes of Zanzibar, 1866, p. 18 (Pangani River, East Africa).

Depth 3 7/10 to 4; head slightly shorter than height. Eye 4 1/2 in head, 1 1/2 in snout, 2 in strongly convex interorbital; premaxillaries reach 1/2 in eye; mandible included in upper jaw; lips thick, fleshy; teeth in premaxillaries anteriorly biserial, posteriorly irregularly triserial; rounded patch of teeth each side of vomer.

Scales 42 to 45 in lateral series; 14 transversely.

D. IV — I, 8, second dorsal origin opposite 27th or 28th scale of lateral series and 2 or 3 scales behind anal origin, base and height longer than second dorsal; both fins strongly emarginate,

Holocentrus rabaji Lacépède, ~~op. cit.~~, Hist. Nat. Poiss.,
vol. 4, 1802, pp. 724, 725 (on Foroskål).

Depth about 2; head little less than 3, profile steeply inclined. Eye 4 1/2 in head, 1 1/2 to 2 in snout, 1 1/3 in interorbital, about equals preorbital depth; preorbital longer than deep, not reaching down to mouth angle, its lower edge straight; incisors 4 to 6 in each jaw, 4 series of lower molars and 5 upper.

Scales 48 to 50 in lateral line, 7 above, 15 below, about 7 rows on cheek.

D. XI, 12 to 15, fifth spine longest;
A. III, 10 to 12, second spine longest.

Silvery, with dark line along each row of scales. Head with 2 black cross bands, first through eye to mouth angle, second from nape to opercle edge. Yellow band before eyes. Snout black.

also caudal; A. III, 9 or 10; pectoral rays II, 16 or II, 17, less than eye diameter shorter than head, reach to or nearly to first dorsal origin; ventral rays I, 5.

Olivaceous above, silvery below. Length 390 mm.

(Weber and Beaufort.)

East Indies.

Chrysophrys bifasciatus Steindachner, Denkschr. Akad. Wiss. Wien, Math.-Naturwiss. Classe, vol. 71, pt. 1, 1907, p. 134 (Makalla and Kor Garrieh, Geschin, South Arabia).

Sparus bifasciatus Bleeker, Atlas Ichth. Ind. Néerland., vol. 8, 1877, p. 107 (copied Day).

Sparus (Chrysophrys) bifasciatus Klunzinger, Fische Roth. Meer., 1884, p. 43.

Pagrus bifasciatus Barnard, Ann. South African Mus., vol. 21, pt. 7, 1927, p. 703 (Zululand, Delagoa Bay).

Sparus mylio Lacépède, Hist. Nat. Poiss., vol. 3, 1802, pp. 41, 131. Mauritius; vol. 3, 1802, pl. 26, fig. 2.

Labrus catenula Lacépède, Hist. Nat. Poiss., op. cit., vol. 3, 1802, pp. 426, 468, pl. 3, fig. 3. Great Gulf of India (Indian Ocean).

Agonostomus telfairii Bennett

Agonostomus telfairii Bennett, Proc. Comm. Zool. Soc. London, vol. 1, 1830, p. 166 (type locality, Mauritius). — Peters, Reise Mossambique, vol. 4, p. 18, pl. 2, fig. 2, 1868 (Mozambique). — Boulenger, Cat. Fresh Water Fish. Africa, vol. 4, p. 99, fig. 60, 1916 (Mauritius; Comoro Islands).

Agonostoma telfairii Günther, Cat. Fish. Brit. Mus., vol. 3, p. 462, 1861 (type; Anjuan). — Martens, Reise Ost Afrika, Decken, vol. 3, pt. 1, p. 141, 1869 (Mauritius; Bourbon). — Sauvage, Hist. Nat. Madagascar, Poiss., p. 403, 1891 (reference).

18 examples. Point Jamelo. July 13, 1908. Length 31 to 72 mm.

9 examples. Port San Pio Quinto, Camiguin Island. November 11, 1908. Length 51 to 80 mm.

44 examples. Port San Vicente. November 14, 1908. Length 35 to 85 mm.

20042. Port San Vicente. November 18, 1908. Length 50 to 66 mm. 10 examples.

1 example. Ragay River, Ragay Gulf, Luzon. March 10, 1909. Length 56 mm.

9544 and 12639. Santiago River, Pagapas Bay, Luzon. February 20, 1909. Length 40 to 95 mm. 45 examples.

20555. Tilig. Lubang. July 14, 1908. Length 52 to 75 mm. 4 examples.

5 examples. Subig Bay, Subig. January 7, 1908. Length 66 to 73 mm.

2699

Agonostomus telfairi Pellegrin,
Mém. Acad. Malgache, vol. 14, p.
182, figs. 99, 2, and 100, 1933
(type of Mertis cyprinoides).

Scales 33 or 34 in lateral line to caudal base and 2 or 3 more on latter; 7 above, 1 below to ventral, 2 below to anal origin; 46 predorsal. Lateral line strongly decurved and all series of scales above in parallel series. Scales with 12 to 18 apical radiating striae, 4 to 26 short parallel marginal basal ones; circuli very fine. D. ~~XXXXXX~~ $\frac{IV}{=}$, 6, $\frac{I}{=}$, or $\frac{III}{=}$, 7, $\frac{I}{=}$, first branched ray $1\frac{2}{5}$ to $1\frac{1}{2}$ in head; A. $\frac{III}{=}$, 10, $\frac{I}{=}$, 11 origin below sixth or seventh dorsal ray base, first branched ray $1\frac{2}{5}$ to 2; least depth of caudal peduncle $2\frac{1}{8}$ to $2\frac{1}{5}$ in head; pectoral $1\frac{1}{6}$ to $1\frac{2}{5}$, rays 12 or $\frac{I}{=}$, 13; ventral rays $\frac{I}{=}$, 7, $1\frac{1}{3}$ to $1\frac{3}{4}$ in head; caudal $3\frac{1}{8}$ to $3\frac{1}{2}$ in rest of fish.

Hesteï cyprinoides Valenciennes, Hist. Nat. Poiss., vol. 11, p. 167, pl. 317, 1836 (type locality, Comoro Islands). — Guichenot, Notes Ile Réunion, vol. 2, p. 27, 1862.

Hesteï dobuloides Valenciennes, Hist. Nat. Poiss., vol. 11, p. 171, 1836 (type locality, Mauritius).

Agonostomus dobuloides Günther, Cat. Fish. Brit. Mus., vol. 3, p. 462, 1861 (copied). — Martens, Reise Ost Afrika, Decken, vol. 3, — Pellegrin, Mém. Acad. Malgache, vol. 14, p. 184, fig. 99, 1 (head), 1933 (Réunion).

Réunion, Nat. pl. 43, r).

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→ Hesteï dobula Guichenot, Notes Iles Réunion, vol. 2, p. 27, 1862.

Hestes cyprinoides Valenciennes, Hist. Nat. Poiss., vol. 11, p. 167, pl. 317, 1836 (type locality, Comoro Islands). — Guichenot, Notes Ile Réunion, vol. 2, p. 27, 1862.

Hestes dobuloides Valenciennes, Hist. Nat. Poiss., vol. 11, p. 171, 1836 (type locality, Mauritius).

Agonostomus dobuloides Günther, Cat. Fish. Brit. Mus., vol. 3, p. 462, 1861 (copied). — Martens, Reise Ost Afrika, Decken, vol. 3, pt. 1, p. 141, 1869 (Mauritius, Réunion, Joanna). — Sauvage, Hist. Nat. Madagascar, Poiss., p. 404, pl. 43, figs. 5-a, 1891 (Madagascar).

→ Hestes dobula Guichenot, Notes Iles Réunion, vol. 2, p. 27, 1862.

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pt. 1, p. 141, 18...
Joanna). — ...
Madagascar, ...
figs. 5–a, 189...
hestes. ...

5533. Malabon market. August 8, 1908. Length 67 mm.

4 examples. Malugao River, Paluan Bay, Mindoro Strait. December 11, 1908. Length 28 to 40 mm.

8 examples. Mariveles Bay, Manila Bay, Luzon. January 27, 1909. Length 57 to 65 mm.

5 examples. Mati, Pujada Bay. May 15, 1908. Length 46 to 60 mm.

7164 to 7167. Panabutan Bay, western Mindanao. February 6, 1908. Length 71 to 88 mm. 17 examples.

2 examples. Pandanon Island, between Cebu and Bohol. March 23, 1909. Length 35 to 45 mm.

3 examples. Point Jamelo, Luzon. July 12, 1908. Length 40 to 59 mm.

9 examples. Point Jamelo, 2 miles up river. July 13, 1908. Length 66 mm.

Leganoptomus telfairi var. catalai Pellegrin, Bull. Soc. Zool. France, vol. 57, 1932, p. 426 (type locality, Rapids of Upper Mananara, East coast Madagascar in Sahasinaka); Mém. Acad. Malgache, vol. 14, p. 184, fig. 99, 3 (head), 1933 (type).

Barilius luahinensis, new species.
Figures 9 (young) and 10 (adult).

Depth $3\frac{3}{5}$ to 4; head $3\frac{1}{2}$ to 4, width $1\frac{7}{8}$ to $2\frac{1}{8}$. Snout $3\frac{7}{8}$ to $4\frac{1}{5}$ in head; eye 3 to 4, greater than snout in young to subequal with age; 1 to $1\frac{1}{5}$ in interorbital; maxillary reaches eye to $\frac{1}{5}$ in eye, length $\frac{2}{3}$ to $3\frac{1}{5}$ in head; rostral barbel 2 in eye in young; subequal to eye with age; maxillary barbel small, short, apparently not present in young; lips thin, narrow; interorbital $2\frac{2}{3}$ to 3, rather low, broadly convex; suborbitals cover cheek. Gill rakers 2 + 9, lanceolate, $\frac{1}{4}$ of gill filaments, which $1\frac{1}{2}$ in eye. Pharyngeal teeth 2, 3, 5—5, 4, 2, hooked, with well-developed,

depth 3 1/2 to 4; head 4 to 4 1/2, width 1 1/4. Snout 3 1/2 to 3 3/4 in head; eye 3 1/2 to 4 1/2, 1 to 1 1/5 in snout, 1 1/3 to 2 in interorbital; maxillary concealed; mouth extends 1/3 below eye; upper lip rather thick; interorbital low; preopercle denticulate.

Scales 40 to 45 in lateral series; 13 or 14 transversely, 3 or 4 series on cheek.

D. IV — II, 7, first spine 1 1/3 to 2 in head, first dorsal ray 1 1/8; A. III, 9, first ray 1 1/5; least depth of caudal peduncle 2; pectoral 1 1/4; ventral 1 1/4; caudal 4 in rest of fish, truncate or feebly emarginate.

Silvery, brownish on back.

Length 230 mm. (Boulenger, Savage.)

5052. Vandalsan, Borneo, dutch East Indies. February 29, 1908. Length 203 mm.

4507 and 4508. Manila market. December 12, 1907. Length 210 to 220 mm. Silvery, with brown longitudinal lines. dorsal and caudal black edged. Anal black. Pectoral very long, pale yellow. Ventral black edged.

9964. Kowloon market, China. September 18, 1908. Length 140 mm.

A1612. Naha, Okinawa, Riu Kiu. February 7, 1910. Length 303 mm.

44920 U.S.N.M. Japan. Government of Japan. Length 372 mm. As Sparus hasta.

53012 and 53013 A.N.S.P. Delagoa Bay, Portuguese East Africa. H.W. Bell Marley. July 1923. Length 130 to 220 mm. As Sparus robinsoni.

53018 A.N.S.P. Durban Bay, Natal. H.W. Bell Marley. 1927. Length 210 mm.

2704

Mauritius, Reunion and
Comoro Islands.

21692, 21693. Cabugao Bay, Catanduanes Island. June 9, 1908. Length 178 to 192 mm.

6094. Iloilo market. May 31, 1908. ~~Bac~~ Length 370 mm. Native name — Bacóco. Dusky silvery, snout and front of head darkest. Sharpness of sides mostly at bases of scales. Lower head and breast white, with dusky shades. Iris silvery. Fins dusky. Dorsal spines silvered, anal spines dusky but without silvery. Caudal slightly darker terminally. Anal and ventrals almost blackish. Pectoral dusky straw, membranes nearly hyaline.

6325. Manila market. July 11, 1908. Length 237 mm.

13966. Palawan Bay, Mindoro. December 11, 1908. Length 115 mm.

8257 to 8260. Ragay Island, Ragay Gulf, Luzon. March 10, 1909. Length 233 to 413 mm.

6085. Zamboanga. May 21, 1908. Length 178 mm.

2705

Agonostomus plicatilis (Valenciennes)

Centracus plicatilis Valenciennes, Hist. Nat. Poiss., vol. 11, p. 157, p. 315, 1836 (type locality, fresh waters of Celebes). — Weber and Beaufort, Nova Caledonia, Zool., vol. 2, pt. 1, p. 27, fig. 3, 1915 (Dubatche; Tao River; Ngoi River). — Fowler, Mem. Bishop Mus., vol. 10, p. 128, 1928 (compiled); vol. 11, no. 5, p. 325, 1931 (reference).

Agonostoma plicatile Günther, Cat. Fish. Brit. Mus., vol. 3, p. 461, 1861 (Aneiteum); Journ. Mus. Godeffroy, pt. 15, vol. 6, p. 219, 1881 (Aneiteum; New Caledonia). — Weber, Zool. Ergebn. Nederl. Ost Indien, vol. 3, p. 451, 1894 (Celebes).

Ambassis safgha (Forskål).

Sciaena safgha Forskål, descript. Animal., 1775, pp. xii, 53. Arabia. — Bonnaterre, Tabl. Ichth., 1788, p. 125 (Red Sea). — Gmelin, Syst. Nat. Linn., ed. 13, vol. 1, 1789, p. 1305 (Arabia). — Walbaum, Artedi Pisc., vol. 3, 1792, p. 319 (ex Forskål).

Perca safgha Schneider, Syst. Ichth. Bloch, 1801, p. 86 (ex Forskål).

Centropomus safgha Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 249, 256 (Arabia).

Ambassis safgha Elera, Cat. Fauna Filip., 1895, p. 467 (Luzon, Manila). — Fowler, Proc. Acad. Nat. Sci. Phila., 1927, p. 275 (San Fernando, Santa Maria, Vigan, Philippines).

2706

Agonostoma plicatile Schmeltz, Cat. Mus. Godeffroy, No. 8, p. 6, 1881 (Viti).

most forward. Gill rakers 6 + 10 or 11, lanceolate, little less than gill filaments or half of eye; 4 above and 1 or 2 below rudimentary. Scales 108 to 115 in lateral line to caudal base with 13 to 15 more on latter; tubes 73 to 81 in lateral line to caudal base and 7 to 14 more on latter; 20 or 21 scales above, 34 to 44 below, 40 to 52 predorsal to occiput; 23 to 25 rows across cheek to preopercle angle; upper half of opercle scaly, with 10 transverse rows of scales; snout and interorbital naked; fins with fine scales basally; body scales without fine auxiliary basal scales. Scales with 5 to 17 basal radiating striae (12 to 16 apical denticles in small examples) and

Agonostomus plicatilis Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 218, 1905 (reference).

Gonostomus lou-lou Macdonald, Proc. Zool. Soc. London, 1869, p. 38, pl. 1 (type locality, Wai Inanu, tributary Reva River, Ha Viti Levu, Fiji).

Agonostomus lou-lou Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 218, 1905 (1906) (reference).

10857. Varadero Bay, Mindoro.
July 23, 1908. Length 73 mm.

4 examples. Obi Island, Bouro Island,
Dutch East Indies. Length 88 to 100 mm.
~~4 examples.~~

Depth nearly 4; head nearly 4 $\frac{2}{5}$. Muzzle bluntly pointed; eye more than 4 in head, ~~about~~ conspicuously less than snout, 2 or more in convex interorbital, about $\frac{1}{3}$ shorter than postorbital; premaxillary reaches opposite pupil; mandible somewhat included; premaxillaries covered by rather thick lip; only premaxillaries with row of small teeth, none on vomer.

Scales 45 in lateral series; 14 transversely, 23 predorsal.

D. $\underline{\underline{IV}}$ — $\underline{\underline{II}}$, 7, origin of first fin midway between end of snout and caudal base, opposite 14th lateral scale, origin of second fin opposite 23rd lateral scale or 2 scales behind anal origin, base of

Räuber, Zool. Ergebn. Kon. Acad. Wiss. Berlin, vol. 1, 1877, p. 12 (Red Sea). 1/m Günther, Philos. Trans. Roy. Soc. London, vol. 168, 1877, p. 471 (Rodrigues). 1/m Boulenger, Proc. Zool. Soc. London, 1887, p. 659 (Muscat). 1/m Day, Fauna British India, Fishes, vol. 2, 1889, p. 46. 1/m Sauvage, Hist. Nat. Madagascar, Poiss., 1891, p. 493, pl. 20, fig. 5 (scale) (Madagascar). 1/m Jugmayer, Abhandl. Kon. Bayer. Akad. Wiss., Math.-physik. Klasse, vol. 26, pt. 6, 1913, p. 11 (Mekran).

→ 1/m Pellegrin, Bull. Soc. Zool. France, vol. 39, 1914, p. 229 (Fort Dauphin, Madagascar). 1/m Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 360 (references).

Chrysophris bifasciatus Rüppell, Neue Wirbelth. Fische, 1835, pp. 111, 120 (Red Sea).

which longer; A. III, 8 or 9; both second dorsal and anal, also caudal, slightly emarginate; pectoral shorter than head, rays 20; ventral rays I, 5; least depth of caudal peduncle ½ in head.

Dark greenish above, sides grayish, white below. Fins dark terminally. Length 325 mm.

(Weber and Beaufort.)

Celebes, [redacted] Melanesia, Polynesia.

Carl 29

Sparus bifasciatus (Forskål)

Chaetodon bifasciatus Forskål, descript. Animal., 1775, pp. SC. XIII, 64. Djedda, Red Sea. 1/m Gmelin, Syst. Nat. Linn., vol. 1, 1789, p. 1269 (Arabia). 1/m Walbaum, Artedi Pisc., vol. 3, 1792, p. 429 (on Forskål). *Chetodon bifasciatus* Bonnaterre, Tabl. Ichth., 1788, p. 85 (Red Sea). *Chaetodon bifasciatus* Valenciennes, Hist. Nat. Poiss., vol. 6, 1830, p. 118 (Red Sea, Massauah, Mauritius). 1/m Günther, Cat. Fishes British Mus., vol. 1, 1859, p. 488 (Red Sea). 1/m Martens, Verhandel. zool. botan. Gesell. Wien, vol. 16, 1866, p. 378 (Suakim, Red Sea). 1/m Playfair, Fishes of Zanzibar, 1866, p. 46 (Zanzibar). 1/m Klunzinger, Verhand. zool. botan. Gesell. Wien, vol. 20, 1870, p. 75-8 (Kosseir, Red Sea). 1/m Day, Fishes of India, pt. 1, 1875, p. 141, pl. 34, fig. 5 (Ind). 1/m Kossmann and

Agonostomus forsteri (Schneider)

→ Mugil albula forsteri Schneider, Syst. Ichth. Bloch, p. 120, 1801.

— Richardson, Voy. Erebus and Terror, Ichth., p. 77, pl. 44, figs. 20-26, 1844-48 (New Zealand).

Agonostoma forsteri Günther, Cat. Fish. Brit. Mus., vol. 3, p. 465, 1861 (Port Arthur, Hobson's Bay, New Zealand). — Steindachner, Sitzs. Ber. Akad. Wiss. Wien, math.-naturw. Kl., vol. 53, pt. 1, p. 460, 1866 (Port Jackson). — Canestrini, Arch. Zool. Anat. Fisiol. Genova, ser. 2, vol. 1, p. 151, 1869 (Australia). — Castelnau, Prov. Zool. Acclimat. Soc.

→ Agonostomus forsteri (Schneider)

Mugil forsteri Valenciennes, Hist. Nat. Poiss., vol. 11, p. 141, July 1836 (type locality, rivers of New Zealand).

Mugil forsteri Richardson, Voy. Erebus and Terror, Ichth., p. 77, pl. 44, figs. 20-26, 1844-48 (New Zealand).

Agonostoma forsteri Günther, Cat. Fish. Brit. Mus., vol. 3, p. 465, 1861 (Port Arthur, Hobson's Bay, New Zealand). — Steindachner, Sitzb. Ber. Akad. Wiss. Wien, math.-naturw. Kl., vol. 53, pt. 1, p. 460, 1866 (Port Jackson). — Canestrini, Arch. Zool. Anat. Fisiol. Genova, ser. 2, vol. 1, p. 151, 1869 (Australia). — Castelnau, Prov. Zool. Acclimat. Soc.

Hasselt) Cuvier. monotypic. — Règne
Animal, ed. 2, vol. 2, 1829, p. 137.

Body short, deep, much compressed,

Ambassis mops Günther, Proc. Zool. Soc. London, 1871, p. 655. Rarotonga; Journ. Mus. Godeffroy, vol. 1, pt. 1, 1873, p. 18 (type).

Ambassis kopsi Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 235, fig. 46. Vaisigano River, Apia, Samoa.

Victoria, vol. 1, p. 141, 1872 (reference).

↑ — Hutton, Fishes of New Zealand, p. 37, 1872. — Hector, Edible Fish. New Zealand, p. 114, pl. 6, fig. 58.

New Zealand, p. 16, 1879. — Klunzinger, Sitzg. Ber. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 80 t. 1

— Johnston, Proc. Roy. Soc. Tasmania, pp. 86, 123, 1882. — Sherrin, Handb. ↓ New Zealand Fishes, p. 65, 1886. ~~Dieffenbach~~,

→ Waite, Rec. Canterbury Mus., vol. 1, no. 1, p. 16, April 25, 1907 (reference).

— Rendahl, Vidensk. Medd. dansk. naturh. Foren., vol. 81, p. 2, 1925 (Bay of Islands and Pikurua Harbor, New Zealand).

Victoria, vol. 1, p. 141, 1872 (reference).
— Steindachner, Sitzs. Ber. Akad.
Wiss. Wien, math.-naturw. Kl., vol.
78, pt. 1, p. 383, 1878 (Murray River, South
Australia). — Hector, Handbook
New Zealand, p. 16, 1879. —
Klunzinger, Sitzs. Ber. Akad. Wiss.
Wien, math.-naturw. Kl., vol. 80, pt. 1,
p. 396, 1879 (1880) (Port Phillip,
Hobson's Bay, King George Sound,
Victoria, New Zealand). —
Waite, Rec. Canterbury Mus., vol. 1,
no. 1, p. 16, April 25, 1907 (reference).
— Rendahl, Vidensk. Medd. Dansk.
naturh. Foren., vol. 81, p. 2, 1925
(Bay of Islands and Pkaroa Harbor,
New Zealand).

Singapore, Bintang, Java, Celebes,
Buru, Amboina, Timor); vol. 8, 1876-
77, pl. (68) 346, fig. 3. — Day, Fishes

of India, pt. 1, 1875, p. 28, pl. 9, fig. 2.
— Macleay, Proc. Linn. Soc. New South
Wales, vol. 2, 1878, p. 346 (Port Darwin).
— Klunzinger, Fische Roth. Akad. Wiss. Wien

1927, p. 275 (San Fernando, Santa Maria, Vigan and Bacon, Philippines). — Barnard, Ann. South Afr. Mus., vol. 21, 1927, p. 642 (Natal coast, Delagoa Bay).

Priopis urotaenia Smith and Veale, Proc. Biol. Soc. Wash., vol. 19, June 4, 1906, p. 77 (Mindanao and Bacon). — Veale and Bean, Proc. U. S. Nat. Mus., vol. 33, 1907, p. 242 (Zamboanga). — Veale, Philippine Journ. Sci., vol. 9, 1914, p. 65 (Hong Kong).

Ambassis commersonii (non Cuvier) Rüppell, Neue Wirbelth., Fische, 1835, p. 89 (Red Sea). Ambassis denticulata Klunzinger, Verh. Zool. bot. Gesell. Wien, vol. 20, 1870, p. 719. Red Sea; Fische Roth. Meer., 1889, p. 24, pl. 3, fig. 4.

Agonostomus forsteri (Waite, Rec.
Ogilby, Pap. Proc. Roy. Soc. Tasmania,
1896 (1897), p. 79 (Tasmania).
South Austral. Mus., vol. 2, no. 1,
p. 83, fig. 126, April 23, 1921
(reference). — Fowler, Proc. Acad.
Nat. Sci. Philadelphia, vol. 75,
p. 43, 1923 (Victoria). — McCulloch,
Rec. Austral. Mus., vol. 5, pt. 1,
p. 118, June 29, 1929 (reference).

Agonostomus forsteri Waite, Rec. Canterbury Mus., vol. 1, no. 1, p. 16, April 25, 1907 (reference); Rec. South Austral. Mus., vol. 2, no. 1, p. 83, fig. 126, April 23, 1921 (reference). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 75, p. 43, 1923 (Victoria). — McCulloch, Mem. Austral. Mus., vol. 5, pt. 1, p. 118, June 29, 1929 (reference).

Molucas, India). — Kner, Reise Novara, Zool., vol. 1, pt. 5, 1865, p. 29 (Java; Hong Kong). — Bleeker, Atlas Ichth. Ind.

Dorsal, caudal and pectoral yellow. Dorsal spinous in black, soft dorsal with narrow black edge. Ventral and anal blackish, latter sometimes with yellow band or last ray yellow. Reaches 375 mm. (Barnard.)

Red Sea, Arabia, Zanzibar, Zululand, Portuguese East Africa, Mauritius, Rodrigues, Madagascar, Mekran, India.

Dajaus diemensis Richardson, Proc. Zool. Soc. London, p. 25, 1840 (type locality, Port Arthur, Tasmania); Trans. Zool. Soc. London, vol. 3, p. 123, (); Voy. Erebus and Terror, Ichth., p. 37, pl. 26, figs. 1-4, 1844-48 (Tasmania).

Jenynsi, Voy. Beagle, Zool., p. 82, 1842 (King George's Sound).

— Evermann and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 75 (Bacan). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 255 (Calayan and Iloilo). — Weber, Siboga Exped., vol. 57, Fishes, 65, 1913, p. 216 (Mangala, Celebes; Laiwui, Obi major; Kawa, Ceram). — Fowler, Proc. Acad. Nat. Sci. Phila., 1925, p. 220 (Malacca, Bay

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Agonostoma diemensis Castelnau, Proc. Zool. Acclimat. Soc. Victoria, vol. 1, p. 141, 1872 (Melbourne); Rec. London Intern. Exhib., p. 14, 1873 (Victoria). — Macleay, Proc. Linn. Soc. New South Wales, vol. 4, p. 425, 1880 (Western Australia); vol. 5, pt. 2, p. 48, 1881 (reference).

Mugil albula (not Linnaeus)
Lichtenstein, Descript. Animal. Forster, p. 145, 1844.
Schneider, Syst. Ichth.. Bloch, pp. XXXII, 120, 1801 (New Zealand) (on Forster).

Ambassis urotaenia Bleeker

Ambassis urotaenia Bleeker, Nat. Tijds. Ned. Indië, vol. 3, 1852, p. 257. Amboina; Wahai, Ceram. — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 224 (copied). — Playfair, Fishes of Zanzibar, 1866, p. 18 (Seychelles, fresh waters). — Martens, Reise d. Ost. Asien (Preuss. Exped.), Fische, vol. 3, pt. 1, 1869, p. 141 (Seychelles). — Day, Proc. Zool. Soc. London, 1870, p. 681 (Andamans and Nicobars); Fishes of India, pt. 1, 1875, p. 55, pl. 15, fig. 8 (Andamans). — Bleeker, Atlas Ichth. Ind. Néerl., vol. 8, 1876-77, p. 105, pl. (66) 344, fig. 2, pl. (73) 351, fig. 1 (Sumatra, Nias, Singapore, Banka, Celebes, Nangir, Ternate, Buru, Batjan, Ceram, Amboina). — Meyer, Anales Soc. Espan. Hist. Nat. Madrid, vol. 14, 1885, p. 12 (Manado, Celebes). — Vergara, Anales Soc. Espan. Hist. Nat. Madrid,

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~~Agonostoma lacustris Castelnau~~

Agonostoma lacustris Castelnau, Proc. Zool. Acclimat. Soc. Victoria, vol. 1, p. 142, 1872 (type locality, Gibbs Land Lakes). — Macleay, Proc. Linn. Soc. New South Wales, vol. 4, p. 425, 1880 (copied); vol. 5, pt. 2, p. 48, 1881 (reference).

Agonostoma tasmanicus Castelnau, Proc. Zool. Acclimat. Soc. Victoria, vol. 1, p. 142, 1872 (type locality, Port Arthur, Tasmania) ~~Tasmania~~ (name only in passing, on Mugil diemensis Richardson).

with rather broad triangular spine. Gill rakers 7 or 8 + 18 or 19, slender, lanceolate, ½ in eye; gill filaments ½ of gill rakers. Scales 26 to 28 in lateral line to caudal base and 4 or 5 more on latter; 4 scales above, 8 below, 12 to 14 predorsal forward in posterior interorbital forming median keel, 2 rows on cheek and preopercle flange naked; caudal with fine scales basally; basal scaly sheath one scale wide along dorsal and anal. Scales with 7 or 8 basal radiating short marginal striae; circuli moderately fine.

D. VII, I, 9, I, second erect spine 1 2/5 to 1 3/5 in total head length, first ray 2 to 2 1/5; A. III, 10, I or 11, I, third spine 1 3/5 to 2; caudal 1 to 1 1/8, deeply forked, slender lobes sharply pointed; least depth of caudal peduncle 2 3/4 to 2 4/5;

depth 3 7/8 to 4 2/3; head 3 2/3 to 4, width 1 1/2 to 3/5. Snout 3 2/5 to 3 3/4 in head; eye 4 1/2 to 5, 1 1/5 to 1 1/2 in snout, to in interorbital; maxillary reaches eye, length 3 1/3 to 3 2/3 in head; interorbital 2 3/4 to 3, rather low, broadly convex. Gill rakers 2 5 + 2 5, slenderly lanceolate, 1 1/4 in eye.

Scales 52 to 56 in lateral series to caudal base; 15 or 16 transversely; 29 to 33 predorsal. Few scales on each membrane of soft anal basally and fewer on those of soft dorsal. Scales 8 or 9 between end of depressed spinous dorsal and soft dorsal origin. Scales with 9 to 13 basal radiating striae; sometimes about 39 weak apical denticles; circuli fine.

black tips. Gray band along center of dorsal and gray spot at base of each spine and ray. Anal spines gray, membrane and rays black, except last 2 rays which white. Reaches 36.3 mm. (Day.)

Year of India.

D. IV or V — I, I, 8, I, first spine 2 to 2 1/5 in head, first simple ray 2 1/4 to 2 1/3; A. III, I, II, I, first simple ray 2 1/8 to 2 1/3; caudal 1 to 1 1/8, deeply emarginate; least depth of caudal peduncle 2 7/8 to 3 2/3; pectoral 1 1/3 to 1 1/2; ventral 2 to 2 1/8.

Back olivaceous, sides and below silvery white. Iris whitish. Fins brownish, hind caudal edge dark neutral gray.

Western Australia, South Australia, Victoria, Tasmania, New South Wales, New Zealand.

outer side of either jaw, last few small with rounded crowns; internal 2 rows rounded small molars in lower and 3 in upper; hind preopercle edge very minutely serrated in young.

Scales 48 in lateral line, 4 or 5 above, 10 below to anal origin, 7 or 8 rows on cheek to preopercle ridge angle; few scales over soft dorsal base, band at anal base, caudal with fine scales almost to its end.

D. XI, 11 or 12, fourth spine 2 1/5 in head, first ray 2 4/5; A. III, 8 or 9, second spine 2 3/5, first ray 3; caudal 1 1/4, emarginate; least depth of caudal peduncle 2 1/2; pectoral 1; ventral 1 3/5.

Silvery gray. About 8 lines radiate from eye and hind preorbital edge. Each row of scales with darkish band along center. Dorsal and caudal with

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A. H. V. P., three examples.
Melbourne, Victoria, Mrs. Agnes
F. Kenyon. Length 275 to 278 mm.

(mel 29

Sparus cuvieri (Day)

Chrysophrys cuvieri Day, Fishes of India, pt. 1, 1875, p. 141, pl. 34, fig. 3. Mangalore; Supplement 1888, p. 788; Fauna British India, Fishes, vol. 2, 1889, p. 45.

Dentex hasta (not Sparus hasta Schneider 1801) Valenciennes, Hist. Nat. Poiss., vol. 6, 1830, p. 255. Malabar, 1/m Bleeker, Verhandel. Batavia. Genootsch. (Nat. Schth. Bengal), vol. 25, 1853, p. 38. 1/m Günther, Cat. Fishes British Mus., vol. 1, 1859, p. 373 (compiled). 1/m Day, Fishes of Malabar, 1865, p. 26 (compiled).

Depth 3; head 3 1/4. Snout 3 in head; eye 4 to 6, 1 1/4 to 2 in snout, 1 1/2 in interorbital; maxillary reaches 2/5 in eye, length 2 4/5 in head; 4 to 6 pointed, rather conic incisors in front of each jaw, with villiform teeth behind; pointed and compressed row of teeth along

Genus Trachystoma Ogilby

Trachystoma Ogilby, Proc. Zool. Soc. London, 1888, p. 614. (Type Trachystoma multidens Ogilby, monotypic.)

Body fusiform. Head small. Snout short. Eye moderate, advanced, without adipose lids. Mouth cleft short. Jaws toothless. Vomer and palate with distinct bands of villiform teeth. Outer preorbital edge serrated. Branchiostegals 6. Pseudobranchiae present. Scales small, finely ctenoid. Fins largely scaleless. Dorsals and anal rather small. Caudal emarginate. Pectoral short. Ventral little shorter than pectoral.

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Trachystoma petardi (Castelnau

Mugil petardi Castelnau, (Res. Fish.

Austral.) Viet. Offic. Rec. Philadelphia

Exhib., p. 32, 1875 (type locality,

Richmond River, New South Wales). —

Waite, Synop. Fishes New South Wales, p. 22, 1904.

→ Trachystoma petardi

— McCulloch and Whitley, Mem.

Queensland Mus., vol. 8, pt. 2, p.

141, July 7, 1925 (reference). —

McCulloch, Mem. Austral. Mus.,

vol. 5, pt. 1, p. 118, June 29, 1929

(reference).

Ogilby, Ann. Queensland Mus.,
No. 2, p. 28, 1908 (compiled).

Mugil pettardi Macleay, Proc. Linn.

Soc. New South Wales, vol. 4, pt. 4, p. 422,

1879 (1880) (compiled); vol. 6, pt. 1, p.

48, 1881 (1882) (Richmond River).

Depth 3; head 2 1/3, width 2 2/3. Snout 4 in head from snout tip; eye 3 1/2, greater than snout or interorbital; maxilla reaches 2/5 in eye, expansion 2, length 2 in head; teeth villiform, in band in upper jaw, ~~arcuate~~ ~~transverse~~ on vomer and palatines; though in both jaws outer row slightly enlarged to give place posteriorly on each mandibular ramus to 3 canines curved back; pair of wide set canines above inside outer band of teeth and single symphyseal canine below; interorbital 4 1/2, level; preopercle ridge entire, edge denticulated. Gill rakers 5+14, lanceolate, much greater than gill filaments or 1/2 in eye.

Scales (pockets) 22 in lateral line to

Inugil breviceps (not Valenciennes 1836) Steindachner, Sitzs. Ber. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 53, pt. 1, p. 459, pl. 1, fig. 1, 1866 (Port Jackson); Ann. Mag. Nat. Hist., ser. 3, vol. 17, p. 318, 1866 (). — Macleay, Proc. Linn. Soc. New South Wales, vol. 4, p. 424, 1879 (1880) (reference).

Liza breviceps Tosh, Mar. Biol. Rep. Queensland, pp. 2, 3, pl. 2, fig. 4, 1903 (Herang River).

scarlet. Irregular transverse obscure
bars of vermilion on sides, only last
3 or one from dorsal to anal axis and
2 on caudal pedencle distinct; on
of body
side, 1 bars more or less fusing and
extend very little below axial line.
Fins vermilion.

4566, 11354, 16901. Mompog Island.
March 3, 1909. Length 140 to 227 mm.
Young with 7 ill defined dark vertical
bands, often more intense or deeply
tinted second band as dark blotch
below lateral line above depressed
pectoral. Whole body with more or
less pale or light spots, one at base

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Brachystoma multidens Ogilby

"Trachystoma multidens Ogilby, Proc. Zool. Soc. London, 1888, p. 614 (type locality, Brackish water at Karuah River mouth, Port Stephens, Australia).

Mugil parviceps Waite, Mem. Nat. Club New South Wales, p. 22, 1904 (new name for Mugil breviceps Steindachner).

Plectropoma (maculatum) areolatum
Rüppell, Atlas Reise nördl. Afrika,
Fische (Alph. Verz. beschrieb. Fische),
1828, p. (143). Red Sea.
Plectropoma cyanostigma Bleeker,
Nat. Gen. Arch. Ned. Indië, vol. 2, 1845,
p. 525. Batavia, Java.

Depth 3 1/2; head 4 1/3. Snout 3 4/5 in head; eye 4, 1 1/10 in snout; maxillary not quite reaching eye, length in profile 3 1/2 in head; upper lip rather narrow, width 1/2 of pupil; interorbital 2 1/2 in head, low.

Scales 48 in lateral series; 15 transversely. Only caudal base scaly, other fins naked. No axillary pectoral scale.

D. IV — I, 8, first spine 1 3/7 in head, first branched ray 1 3/5; A. III, 9, first branched ray 1 1/2; least depth of caudal peduncle 2 1/5; pectoral 1 1/5, rays II, 13; ventral rays I, 5, fin 1 1/4 in head; caudal 3 1/2 in rest of fish, moderately emarginate behind.

perforated scales, one
single pore form lateral line which
extends about opposite $\frac{4}{5}$ of
depressed pectoral fin; 30
predorsal forward to end of
snout; 3 rows on cheek. Caudal
largely covered with fine scales
from base and fewer also on
caudal base. Scales with 15 or 16
basal slightly radiating striae;
36 or 37 apical denticles, each with
strong basal heel formed of 3 to
5 segments; circuli fine, apically
continuous from apical denticles,
finer basally.

D. III, 7, fin height in young
$1\frac{1}{4}$ in total head, with age forms long
slender point reaching middle
of caudal; D. VIII, 20 or 21,
fin height in young $2\frac{3}{4}$ in total
head, last rays with age reach
$\frac{2}{3}$ in caudal; caudal ends in

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Back gray, belly golden yellow. Blackish blotch in pectoral axil. Length 223 mm.
(Steindachner.)

New South Wales, Queensland.

Cruchopsis diamensis, new species. Figures 11 (adult) and 12 (young).

Depth 3 1/3 to 3 2/5; head 2 3/5 to 2 4/5, width 2 1/5 to 2 1/4. Snout 4 in head from snout tip; eye 3 1/5 to 3 1/4, exceeds snout, subequal with interorbital; maxillary reaches 3/4 to eye, length 4 to 4 2/5 in head from snout tip; lips rather broad, fleshy; teeth villiform, in narrow bands in jaws, none on palate; interorbital 3 to 3 3/4 in head from snout tip low, convex; preorbital finely denticulate on lower edge in young nearly entire with age; preopercle edge with few small denticles along hind edge. Gill rakers 6, 1/3 of gill filaments, which 1/2 of eye.

Scales 29 in medial axial series to caudal base and 3 more on latte